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Report of Proceedings of a Study on MASS CASUALTY MANAGEMENT

7 - 10 NOVEMBER, 1983

Earth Sciences Library

Prepared and published by the
Australian Counter Disaster College
Mount Macedon
1984

THE COLLEGE CHARTER

"The role of the Australian Counter Disaster College is to contribute to the development of an efficient Australian counter-disaster capability by training selected personnel in counter-disaster and civil defence requirements; by fostering understanding and co-operation between appropriate elements of the community and by undertaking research into selected aspects of disaster."

COMMONWEALTH OF AUSTRALIA

In view of the recent mass-casualty-producing disasters in Mexico City and Bhopal, the delayed publication of this Report may be timely. Awareness of those tragic events, and a realisation that a range of hazards with equally devastating potential exists in many areas of Australia, should give rise to detailed consideration of the contents of the enclosed Report.

It is hoped that publication of this Report will stimulate further action throughout Australia, to improve our nation's inherent ability to cope effectively with any future mass-casualty-producing emergencies.

With the compliments
of
The Director,
Australian Counter
Disaster College,
Mount Macedon.
Victoria, 3441

Telephone:
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Telex: 34 089

Natural Disasters Organisation
Department of Defence

Report of Proceedings of a Study on MASS CASUALTY MANAGEMENT

7 - 10 NOVEMBER, 1983

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AUSTRALIAN COUNTER DISASTER COLLEGE

MASS CASUALTY MANAGEMENT STUDY

7 - 10 NOVEMBER 1983

REPORT OF PROCEEDINGS

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AUSTRALIAN COUNTER DISASTER COLLEGE

MASS CASUALTY MANAGEMENT STUDY

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REPORT OF PROCEEDINGS

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AUSTRALIAN COUNTER DISASTER COLLEGE

MASS CASUALTY MANAGEMENT STUDY

7 - 10 NOVEMBER 1983

REPORT OF PROCEEDINGS

INTRODUCTION

1. A Mass Casualty Management Study was held at the Australian Counter Disaster College, Macedon between 7 and 10 November 1983. The Study was jointly co-sponsored by the Commonwealth Department of Health and the Commonwealth Department of Defence (Natural Disasters Organisation).

The Study's Aim and Purpose

2. The Study was designed to acquaint participants with the current arrangements for the management of mass casualties in Australia, and to identify deficiencies in those arrangements and the means of overcoming them. Consideration was also given to the problems of handling and treating mass casualties in both metropolitan and remote areas. For the purposes of the Study, and in the context of the Study's consideration of mass casualty management, a mass casualty producing disaster was defined as:

> 'An event which results in such a number or range of casualties that the fabric of society will be endangered without the application of extraordinary medical and health measures and resources.'

Attendance

3. The Study was attended by senior representatives of the appropriate Commonwealth, State and Territory government departments and counter-disaster organisations, together with medical and health professionals representing the learned Colleges and a number of other professional organisations. An observer also attended from New Zealand. A list of participants is at Annex A; in summary, the following organisations were represented at the Study:

The Commonwealth Departments of:

Communications
Defence (including the Natural Disasters Organisation)
Health
Special Minister of State
Veterans' Affairs

3. (continued)

State/Territory:

Counter-Disaster Organisations
Health Authorities

Other Organisations:

Royal Australasian College of Surgeons
Royal Australian College of General Practitioners
National Association of General Practitioners of Australia
Royal College of Pathologists of Australia
Royal Australian and New Zealand College of Psychiatrists
Australian College of Paediatrics
Committee of Deans of Australasian Medical Schools
Royal Australian Nursing Federation
Australian Society of Emergency Medicine
Australian Resuscitation Council
Australian Medical Association
Australian Hospital Association
National Council of Chemical and Pharmaceutical Industries
Royal Flying Doctor Service of Australia
Australian Red Cross Society
St John Ambulance Association

THE PROGRAM

Outline of the Program

4. The Study consisted of presentations and discussions on the following topics :

a. the Australian disaster problem;

b. Australian concepts in counter-disaster management;

c. current arrangements for counter-disaster planning and preparedness for the management of mass casualties at Commonwealth and State/Territory level;

d. current information exchange, and

e. consideration of selected planning and operational aspects in the management of mass casualties in Australia, in both metropolitan and remote settings.

A detailed program is at Annex B.

Opening Address

5. In welcoming participants and opening the Study, the Director of the Australian Counter Disaster College pointed out that in the last ten years the College had held a number of studies into various aspects of the medical response to disaster, the most recent - that in 1979 devoted to the management of mass burns casualties - having also been conducted on a co-sponsored basis with the Commonwealth Department of Health. Noting that the effectiveness of such studies had to be judged in terms of the scope and effectiveness of subsequent action, he invited participants to identify deficiencies in the current arrangements for managing mass casualty-producing situations and to develop the means for overcoming these deficiencies both within medical plans in general and within their own organisations in particular. He indicated a number of specific questions which experience suggested the Study should address, and emphasised that effective mass casualty management required co-operation, understanding and the co-ordination of all available resources. The text of this opening address is at Appendix 2 to Annex F.

6. As background to the Study, staff of the College outlined the Australian disaster problem and Australian concepts of counter-disaster management. In relation to the former, it was emphasised that while within historical experience the impact of disaster on Australian communities had been relatively minor in comparison with some overseas experience the range and possible magnitude of likely disaster events was extensive. In relation to the latter, the constitutional division of responsibilities in regard to 'the protection and preservation of life and property' was stressed, whereby the States have primary responsibility for this function and the Commonwealth has essentially a support role; recent developments towards the adoption of a 'comprehensive' and 'integrated' emergency management concept in Australia were also reviewed.

Keynote Address

7. The keynote address was given by Mr D D Beard FRCS FRACS, Head of Surgical Services at Modbury Hospital, Adelaide and an Honorary Surgeon to Her Majesty the Queen. The full text of Mr Beard's address is at Annex C.

8. In his address, Mr Beard set disaster within both its Biblical and historical contexts, emphasising the power of nature and its impact on civilisation. He stressed the need for research, planning and preparedness to cope with the effects of disaster, in recognition of such well-established phenomena as panic, confusion and convergence and noting that medical and health facilities, resources and personnel would be unlikely to be spared in such events.

9. Having made a case for the establishment of an effective emergency medical service within the existing medical and health structure and for the development of a community capability through awareness and first-aid training, Mr Beard then addressed the needs of mass casualty management, emphasising that effective mass casualty management required a capability for :

Triage,
Treatment, and
Transportation.

Dealing with each in turn, Mr Beard indicated the need for a variety of levels of competence and capability in all three in order to deal with disaster requirements. He examined in some detail the need for greater hospital preparedness and for more extensive training for those likely to be involved in assisting the community to cope with disaster (including general practitioners, members of paramedical organisations, and members of the public themselves).

10. In conclusion, Mr Beard commended participants for their willingness to spend the next few days in consideration of mass casualty problems, but reminded them that they were assuring themselves of a lifetime of hard work in the field of mass casualty management.

Presentations

11. In preparation for the Study, States and Territories had been requested to prepare papers addressing the current arrangements for planning for and managing mass casualty situations should they arise within their areas of responsibility. At this stage in the Study, the Commonwealth Department of Health offered an overview of arrangements at Commonwealth level to manage mass casualty situations, and participants designated by State and Territory authorities spoke to the submitted papers.

12. A transcript of the Commonwealth overview, together with the papers submitted by State and Territory authorities, is at Annex D. The State and Territory papers are introduced by the guidelines which were offered by the Study working party to assist in their preparation.

Discussion Exercises

13. Two discussion exercises were undertaken during the Study, the first relating to an incident occurring in a remote locality and the second relating to a major disaster occurring in a metropolitan locality. Participants were divided into syndicates; all syndicates addressed a common question relating to the jurisdictional and operational problems likely to be faced by medical and other authorities in the given situation, and each syndicate was given a

specific question relating to one of the following :

a. control and co-ordination of the response to the situation as a whole;

b. the mobilisation and deployment of medical and other required resources;

c. on-site handling and treatment of casualties;

d. the handling of casualties between the incident site and temporary or final treatment destinations, and

e. the organisation of hospital admissions.

14. Details of the scenarios and of the syndicate responses are at Annex E.

Other Considerations

15. During the Study, opportunity was taken to brief participants on relevant current information pertinent to the Study and in a number of other aspects of interest. By courtesy of the Commonwealth and Victorian Departments of Health, a display of information, material and equipment was also mounted at the College during the Study, along with reference and other material assembled by the College in connection with the Study. Considerable interest was expressed in a paper by Dr Marcel Dubouloz, Vice-President of the International Society of Disaster Medicine, entitled "An Introduction to Disaster Medicine" and published in the International Civil Defence Bulletin (No. 338, August 1984). The article was made available to members attending the Study and is attached, at their request, at Annex F, Appendix 1 to this Report.

16. Also at Annex F are transcripts of the following presentations made during the course of the Study:

Appendix 2	Opening Address by Director, ACDC
Appendix 3	An address on the organisation, equipment and capabilities of the Royal Flying Doctor Service of Australia given by Dr L Jongbloed
Appendix 4	An address on Australian chemical and pharmaceutical capabilities in support of mass casualty management given by Dr C R Proctor, ICI (Australia) Operations

16. (continued)

Appendix 5 Closing Address by Director, ACDC.

Closing Addresses

17. In his closing address to the Study the Director of the Australian Counter Disaster College, Brigadier I G C Gilmore OBE emphasised that he believed that while the immediate aim of the Study had been achieved through the efforts of all the participants, the Study would not have been cost-effective unless the views which had been expressed in regard to deficiencies gave rise to deeds and progressive action. He summarised the steps which needed to be taken to develop effective medical plans, warning against the tendencies of planning in isolation and of planning in a purely "nominal" fashion. He expressed his thanks to all participants, and his special appreciation to those who presented papers during the Study and to the members of the Study Working Party. The text of this address is at Appendix 5 to Annex F.

18. Major General K W Latchford AO, the Director General of the Natural Disasters Organisation, noted that modifications to existing organisations and arrangements take time to achieve and thus instantaneous results cannot be expected from studies such as this. There was heavy reliance on participants with executive authority in their own organisations and planning structures progressing the Study conclusions into reality with some priority. He believed that Study participants had contributed effectively, and that a significant value in such gatherings was the opportunity they provided for mutual discussion and group identification of possible solutions. He wished all participants safe travel home and success in future professional endeavours.

19. The Chief Commonwealth Medical Officer, Dr D de Souza, expressed his thanks to the Director and Staff of the College, on behalf of the Commonwealth Department of Health, for the highly professional and good-humoured way in which they had conducted this valuable Study. He believed that the aim which had been expressed for the Study - the aim of having participants return to their organisations not only knowledgeable in current mass casualty management arrangements but also motivated to improve those arrangements - had been effectively achieved. He thanked all involved for their contribution to the success of the Study.

CONCLUSIONS

20. The conclusions reached by the Study fall into the areas of :

a. basic concepts in the approach to mass casualty situations;

b. planning to cope with mass casualty situations, and

c. managing mass casualty situations.

Basic Concepts in the Approach to Mass Casualty Situations

21. 'The lesson of experience is that we do not learn from experience.' Because disasters are, by definition, relatively rare events, there is a natural tendency for medical and health professionals to relegate their studies of mass casualty management to a lower priority than their day-to-day activities. The result may be unpreparedness to deal with situations in which the highest premium must be placed on professionalism; all professionals are therefore encouraged to learn from the widely-documented experience of coping with disasters.

22. There is a need for the development of a concept of disaster medicine, and all medical and health professionals should be trained in this concept. Teaching of the concept and basic principles of disaster medicine should be incorporated in the training of all medical and health professionals. Consideration also needs to be given to the core training and updating which might be needed to equip general practitioners and basically-qualified doctors for the emergency medicine tasks which might be required of them at a time of natural disasters.

23. The fundamental concept of disaster medicine should be that the response to disaster should be based on the projection of normal roles into the disaster situation - organisations and individuals should continue to perform their basic roles in which they are trained and experienced, with appropriate supplementation to extend their capability to meet community and social need in the situation pertaining to the management of mass casualties.

24. Professional and community expectations as regards the levels of care desirable in normal circumstances may not be achievable in disaster situations. There is a need for psychological preparation of both the professions and the community to accept the abnormal measures which may need to be applied in the event of a mass-casualty-producing disaster, recognising that every effort will be made to

optimise the level of care offered.

25. First aid training and retraining should be mandatory:

a. in all schools;

b. in all medical courses at universities;

c. for the award of a driver's licence, and

d. in all teacher training.

Planning to Cope with Mass Casualty Situations

26. Planning to cope with mass casualty situations must involve all health professionals. However, it must also recognise that a wide range of statutory, voluntary and government organisations will also be involved in such planning, with roles in such areas as :

a. Triage.

b. Initial care.

c. Casualty collection.

d. Early hospital care.

e. Early hospital evacuation.

f. Further hospital evacuation.

g. Final medical care.

h. Rehabilitation.

27. Disaster plans must be flexible enough to deal with unexpected circumstances. They must recognise that planning provides a basis for the activation and mobilisation of resources which can then be applied to meet the needs of the actual situation; they cannot be an inflexible 'blueprint' which attempts to dictate response in all situations.

28. Boundaries used by medical, police, fire, ambulance, municipal and other authorities and organisations with a potential controlling role in disaster response should be rationalised within all States and Territories.

29. All disaster plans must recognise the requirements and the potential of the media, and make appropriate arrangements to derive maximum mutual benefit from the potential and the capabilities of the media.

30. Plans must be methodically prepared, and be:

a. written;

b. simple;

c. properly disseminated;

d. frequently tested, and

e. regularly revised.

Managing Mass Casualty Situations

31. Proper liaison, efficient communication and expedient co-ordination of all available resources are the prerequisites to effective disaster response.

32. The basis of primary care in mass casualty situations is triage and 'ABC' (airway, breathing and circulation). This must be accompanied by a system to ensure the effective 'labelling, packaging and dispatching' of casualties to appropriate facilities for further care.

33. In the conduct of triage, it may be necessary for the needs of society to take precedence over individual needs.

34. Psycho-social support must be provided at all levels and stages of the disaster response, to victims and workers alike.

35. Provision must be made for appropriate relief support and de-briefing (including psychological debriefing) of acute management personnel.

36. In many mass casualty situations, there is likely to be a conflict between immediate treatment needs and the requirement to evacuate a threatened area. The principle of 'the greatest good for the greatest number' must prevail in such situations.

37. There will always be a problem of 'convergence' - an over-concentration of people, material and communications - in a mass casualty situation, and managers must be prepared to cope with this.

38. Disaster victims arriving at hospitals should be accompanied by sufficient information to assist diagnosis and treatment. This requires care, conscientiousness and completeness in the use of labels and recording systems.

39. There is cause for concern at the present level of control over road transport operations, vehicles and driver standards, not simply to the extent that inadequate control may contribute to the development of mass casualty situations but also recognising that road transport may play a vital part in medical and community evacuation.

40. The disposal of large numbers of fatalities will create practical, forensic, public health and legal problems which need examination in order to establish appropriate protocols.

41. The disposal of livestock and pets may also require special consideration, as a matter of public health concern, after such events.

42. In relation to information on drugs and chemical hazards :

a. there was felt to be considerable cause for concern over deficiencies in Australian chemical and pharmaceutical production capability which would result in severe shortages in some critical areas if for any reason Australia were to be cut off from normal sources of supply;

b. the National Drug Information Service, which has proven most worthwhile, should be given an extended scope of service to include a twenty-four hour telephone inquiry capability and data bank facilities, and

c. consideration should be given to the establishment of a chemical hazards assessment unit.

43. Bearing in mind the extent to which a major mass casualty situation could require the deployment of resources from a variety of agencies and even from interstate, there was cause for concern at the evidence offered to the Study of a lack of standardisation of major emergency service equipments and of likely interoperability problems in such situations. It was concluded the requirements and problems of mass casualty situations should be studied by all agencies likely to be concerned.

ANNEX A

MASS CASUALTY MANAGEMENT STUDY

7 - 10 NOVEMBER 1983

LIST OF PARTICIPANTS

Mr J P Barr	Executive Officers (Plans), Natural Disasters Organisation
Dr R W Beal	Director, Red Cross Blood Transfusion Service, Australian Red Cross Society, SA.
Mr D D Beard	Head, Surgical Services, Modbury Hospital, SA.
Mr J L Bickford	Assistant Director, Regions and Communications Branch, Queensland State Emergency Service.
Insp B E Bingham	Displan Officer, Victoria Police.
Supt C L Bowden	Headquarters, Queensland Police Dept.
Prof Tess Brophy	Deans of Australasian Medical Schools
Miss M Caldwell-Smith	NSW Dept of Health
Mr R Charrington	Northern Territory Emergency Service
Dr A Cumming Thom	Capital Territory Health Commission
Dr A F D'Arcy	Australasian Society for Emergency Medicine
Mr L M Davies	St John Ambulance Association ACT
Dr G De Cean	Commonwealth Dept of Health
Dr D de Souza	Commonwealth Dept of Health
Mr R K Ellis	Natural Disasters Organisation
Dr J G Emery	National Association of General Practitioners of Australia

LIST OF PARTICIPANTS (Continued)

Dr J Fraillon	Royal Australian College of General Practitioners of Australia
Mr N C Gillard	Department of Health Services, Tasmania
Dr J E Gilligan	Royal Australasian College of Surgeons
Mr K W Graham	NSW Ambulance Service
Dr P W H Grieve	Royal Australian College of General Practitioners
Dr J Grigor	Health Commission of Victoria
Dr J D Harley	Dept of Health, NSW
Dr J Harrison	Health Commission of Victoria
Mr S Hase	Royal Australian Nursing Federation
Mr D L Hill	Western Australian State Emergency Service
Mrs J W Hogan	NT Dept of Health
Mr G Hughes	Dept of Communications
Mr W R Johnson	Royal Australasian College of Surgeons
Supt E J Johnstone	Tasmania Police Dept
Dr L Jongbloed	Royal Flying Doctor Service
Dr D Kelly	Queensland Dept of Health
Ms B B Kerby	Australian Nursing Federation
Mrs S Kime	Queensland Dept of Health
Dr D K Kirke	NT Dept of Health
Mr C Kleinman	Western Australia State Emergency Service
Dr W A Langsford	Commonwealth Dept of Health
Mr J M Lines	Dept of the Special Minister of State

LIST OF PARTICIPANTS (Continued)

LT COL A P Luscombe	Dept of Defence
Mr S MacLeod	SA State Emergency Service
Assoc. Prof J P Masterton	Deans of Australasian Medical Schools
Brig J A McGreevy	SA Health Commission
Mr J McLaren	Capital Territory Health Commission
Dr P Nicoll	Australian Hospitals Association
Dr H F Oxer	St John Ambulance Assoc. WA
Mr A T Pembroke	NSW State Emergency Services
Dr D J Pounder	Royal College of Pathologists
Dr C R Proctor	The National Council of Chemical and Pharmaceutical Industries
Mr J Purvis	Tasmania State Emergency Service
Prof B Raphael	Royal Australian and New Zealand College of Psychiatrists
Mr A C Silverson	New Zealand Ministry of Civil Defence
Dr C S Smith	South Australian Health Commission
Dr P T Southgate	The Commissioner, WA Dept of Hospital and Allied Services
Dr J M Sparrow	Director General of Health Services, TAS
Miss M M Strang	Lincoln Institute of Health Sciences
Dr D E Taylor	Capital Territory Health Commission
Snr Chief Supt K Thorsen	South Australian Police Dept.
Dr B E Todd	Australian Medical Association
Mr C J Trickett	Victoria State Emergency Service
Dr R de C Tunbridge	Health Commission of Vic
Mrs E P Tyler	Australian Resuscitation Council

LIST OF PARTICIPANTS (continued)

Dr D Webling	Dept of Veterans Affairs
Mr L J Willett	Commonwealth Dept of Health
Mr D Withers	Commonwealth Dept of Health
Mr A Woodward	Aust College of Paediatrics

ANNEX B

MASS CASUALTY MANAGEMENT STUDY

7 - 10 NOVEMBER 1983

DETAILED PROGRAM

Monday, 7 November 1983

By 6.00 pm — Delegates arrived at ACDC

8.00 pm — Introduction:

to the College
to the Study

Tuesday, 8 November 1983

9.00 am - 10.30 am — The Background
The Australian Disaster Problem

Australian Concepts in Counter-Disaster Management

10.45 am - 12.30 pm — Keynote Speaker
Mr D D Beard FRCS FRACS,
Head of Surgical Services,
Modbury Hospital, Adelaide

1.30 pm - 5.30 pm — Current Arrangements for Mass Casualty Management in Australia

A Commonwealth Overview -
Dr W A Langsford, Department of Health

State/Territory Arrangements -

Queensland	(Dr D Kelly)
New South Wales	(Dr J D Harley)
Victoria	(Dr R Tunbridge)
Tasmania	(Dr J M Sparrow)
South Australia	(Dr C S Smith)
Western Australia	(Dr P T Southgate)
Northern Territory	(Dr D K Kirke)
ACT	(Dr A Cumming Thom)

8.00 pm — Reports

Presentation - Royal Flying Doctor Service (Dr L Jongbloed)
The 1982 US Mass Casualty Management Study
Current Films/Information Exchange

Wednesday, 9 November 1983

8.30 am - 9.00 am — Introduction to Discussion Exercises

9.00 am — Discussion Exercise 1 - The Remote Locality

9.30 am - 12.30 pm — Syndicate Consideration

1.30 pm - 3.30 pm — Central Presentations and Discussion

3.50 pm — Discussion Exercise 2 - The Urban Problem

3.50 pm - — Syndicate Consideration

6.45 pm for 7.15 pm — Study Dinner

Dinner Speaker Dr C R Proctor MBBS FFARACS
Medical Director, ICI (Aust) Operations

Thursday, 10 November 1983

8.30 am - 2.00 pm — Discussion Exercise 2 - The Urban Problem (cont)

9.00 - 11.00 am Syndicate Consideration (cont)
11.20 am - 12.30 pm Central Presentations and Discussions (cont)
1.30 - 2.30 pm Central Presentations and Discussions (cont)

2.00 pm - 3.30 pm — Summary of Study Conclusions
Consideration of Report of Proceedings

3.30 pm - 4.00 pm — Closing Addresses

4.00 pm - 4.30 pm — Administration

4.30 pm — Delegate departed from ACDC

ANNEX C

MASS CASUALTY MANAGEMENT STUDY

7 - 10 NOVEMBER 1983

KEYNOTE ADDRESS

by

MR D D Beard, FRCS, FRACS

Head, Surgical Services, Modbury Hospital, SA

MASS CASUALTY MANAGEMENT SEMINAR

AUSTRALIAN COUNTER DISASTER COLLEGE,

MOUNT MACEDON, VICTORIA, 7 NOVEMBER, 1983.

SEMINAR DEFINITION OF DISASTER

1. "An event which results in such a number or range of casualties that the fabric of society will be endangered without the application of extraordinary medical and health measures and resources."

   It has never been possible to eliminate catastrophes either natural, accidental or intentional, there will always be resultant mass casualties which will extend beyond the capabilities of services available to deal with them. There will always be examples of normally placid nature exploding into a rampage.

   "The voice of thy thunder was in the heaven the lightnings lightened the world".

   Isiah

THE POWER OF NATURE

2. "With all his monstrous nuclear devices man has not yet approached the destructive power of nature."

   Civilization came out of the sands of the desert and on some occasions has been buried by it. Earthquakes,

avalanches, floods and fires have killed millions but always there has been some lot or Noah survived to tell the tale and to carry on the species.

The Greek Philosopher Empedocles presumed the universe to consist of the elements earth, fire, air and water. From them came the manifestations of violence - earthquakes, volcanos, cyclones and floods.

THE UNIVERSAL ELEMENTS

3.

Earth	Earthquakes
Fire	Volcanoes
Air	Cyclones
Water	Floods

The forces of nature have been violent and relentless. They have shaped the destiny of the earth and its people.

The terrors of the seas and the winds kept Australia isolated from the rest of the world until 300 years ago. Prior to that its history is "in the dream time". Countless ships and explorers were dashed against the rocks and engulfed by mountainous waves. The Aboriginal people of Australia perhaps wish that Western man had never conquered those winds and waves long enough to reach the shores.

THE RESTLESS WIND

4. "Tis a noble and heroic thing the wind
Whoever conquered it?
In every fight it has the last and bitterest blow"

Captain Ahaab in "Moby Dick".

Australia is a large country with a small population but with a large potential for major natural disasters and we could conceivably be the target for a nuclear war attack, the very features which isolated us from the rest of the world for countless centuries will also isolate us from help. We are separated by such distances that the rest of the world could be excused for not being particularly concerned about our problems. Our forbears triumphed over flood, fire, drought and other adversities. They took all the risk and they did it mostly without help. The time for taking risks is over.

THE NOTION OF DISASTER

5. This is first portrayed in the Book Genesis in the Bible. The relationship of Adam and Eve until the eating of the fruit was non-sexual. When they discovered their sexuality it was a brother-sister incest. In the same way Cain and Abel represented homosexual incest between brothers. Man's prosperity in the world depends on maintaining social and sexual relationships that are pleasing to God. Apart from its other dramatic themes and moral issues Genesis ties man's welfare and nature's benevolence to the observance of essential kinship. The story of the great flood becomes a crucial part of the scheme. The flood was the most sweeping solution possible to the problems created by the union of Adam and Eve.

In Genesis God places responsiblity for the flood on man's moral decadence. It became the only method to renew and purify the world.

"And God said unto Noah - the earth is filled with violence and corruption. I will destroy the people with the earth. I will cause it to rain 40 days and 40 nights. But with thee I shall establish my covenant. And every living substance which is upon the face of the earth will be destroyed."

Noah's goodness saved the seed of mankind. God repented and the covenant of the rainbow ensured the continuance of life.

But there is no guarantee that man's behaviour and his corruption will never again be dealt with so harshly. There have been examples of disasters and catastrophes throughout the ages. Do we bring them upon ourselves? We may well do this either directly or indirectly.

Similar to the events of the flood was God's dealing with the problems which arose in Sodom and Gomorrah and the other cities of the plains. But once again God relented and allowed Lot to leave to carry on mankind.

"And the Lord said to Lot - hast thee thither - and then he rained fire and brimstone and overthrew those cities and all the inhabitants and the smoke of the country went up".

Another ancient story about catastrophes comes from Norway with the story of Ragnarok immortalized in Richard Wagner's Opera "Gotter Dammerung." There is human corruption when brother fights brother and

and children turn against parents. The orderly cycles of nature decay. Loki was punished by being chained beneath a poisonous snake. When his wife could not protect him from the dripping poison his agonized struggles produced earthquakes.

Disasters have had a terrible destructive role in civilization. The eruption of Santoroni, the Greek Island, around 1500 BC had immeasurable historical consequences for the civilization of the Eastern Mediterranean. It exploded carrying everything in its path and half the island disappeared. In Egypt Moses described the fall of Santoroni.

"He stretched out his hand to Haman and for three days there were dark shadows over the whole of the country."

"People did not see each other and no one raised from his place for three days"

Exodus

"Tomorrow I will send hail stronger than anything which has ever been seen in Egypt. Men and beasts will perish under this hail."

Exodus

The most exposed civilization to this volcanic eruption was Crete. The powerful Cretan civilization crumbled never to recover.

DISASTER WARNINGS

6. In military operations there is usually some warning of an impending attack but there have been many examples in military history of these warnings being ignored. An army should be ready to withstand such an attack and not panic but it can only be done by pre-planning and training. Similar systems should be utilized with civilian disasters which come with frightening suddenness. No military organization is available to deal with them. Everyone involved in planning for such a disaster has another civilian occupation. Teams must take care of the disaster victims and they must be drawn from their civilian occupations but making sure that some staff remain to deal with the day to day problems.

The situation will be chaotic because it occurs infrequently in any one country but taking the world as a whole there is one disaster after another. It is therefore necessary for us to pool our knowledge and

experience and try to develop worldwide standard operating procedures for the disaster situation.

Much research is necessary in the field of prediction of cyclones, floods, earthquakes and fires.

The north of Australia is surrounded by widespread seasonal cyclone activity. Most of them start at sea and blow themselves out before they reach land and even when they do the probability is that they will cross uninhabited portions of the north, north-west and north-eastern coasts. It is unlikely that Darwin will be hit again with such severity for 50 years. Many people are prepared to gamble on this 50 years. Cyclone Tracy struck with great ferocity in the early hours of Christmas Morning 1974. Three-quarters of the buildings were destroyed and the City was left without water, sewerage, power and communication. On the day of the disaster it was difficult to ascertain who had been killed or injured, who was missing and who was in fact safe. Everyone passing through treatment centres or check-points should be recorded and then this information can be pooled if necessary by a computer.

Even if disastrous natural phenomena cannot be avoided their affects can be mitigated by a study of vulnerability. The exact time may not be known but fault zones, flood plains, cyclone areas and active volcanoes are known and should govern nearby human activity but all too often they do not.

China has always been subjected to earthquakes and has always been interested in their prediction from the simple methods of 2,000 years ago when changes of the level of water in wells was thought to be a bad omen, and also changes in the behaviour of animals.

"When rats run out of their hiding place
When fowls fly up to the trees
And pigs break out of their pens
And dogs bark without reason"

This may be due to animals having a sensitivity to the vibrations preceding an earthquake.

Earthquakes filled people with fear and they did not understand them until eventually Robert Mallett, the Irish Geologist and Engineer, suggested that the only way that mountains and landscapes could be split was by "waves of elastic compression moving through solid substances in the surfaces of the disturbed country".

In 1966 seven hours before much of Florence disappeared under water it was obvious that a serious flood was on the way, but no warning was given.

The workers on Italy's Vaiont dam were alert to the danger of a landslide on 9/10/63 but no one passed the message on to the villagers in the valley below and 2,000 were drowned.

On 1975 Haicheng in China was alerted to the probability of an earthquake and the town was completely evacuated. Memories, however, are short. In the following year there were some predictions but no action was taken and the city of Tangshan was not evacuated and it is thought that a million people may have been killed.

There has always been a belief that earthquakes portend change in national leadership.

The first seismic measuring device was invented in China in the 2nd Century A.D. The tilting of a vase in the early stages of an earthquake precipitated balls into the waiting mouths of frogs.

60 years ago on 1st September 1923 in a brief passage of time Tokyo and Yokohama were subjected to earthquakes, typhoons, fires landslides floods and torrential rains in rapid succession. From these resulted 311,464 killed and missing.

We never know when and where further earthquakes will erupt. In Australia we have become complacent. We tend to believe that earthquakes are for other countries. We have however had them and there is no reason why we should not have them again in far greater forces.

"I had thought that submarine eruptions were ended. Nothing has ever ended in the volcanic parts of the sea.The globe is always being worked by subterranean forces."

Captain Nemo = Jules Verne - "20,000 leagues under the sea".

To compound the problems of the countless thousands of casualties in Tokyo, 27% of the health personnel were killed or injured and 242 of the Hospitals destroyed. A bus and train crash in a small country town in Australia could put just as much strain on its one Doctor and its Cottage Hospital.

"An earthquake for us is both a catastrophe and a form of religious enlightenment for the National spirit."

Major General Araki as quoted to George Bernard Shaw.

"Starvation is a slow and painful death,
They that die by famine die by inches."

Starvation is one disaster with which we have not had to contend in Australia, but we need to help other countries. In 1971 during the War in East Pakistan more than 20 million people faced starvation. Some of them had survived the famine of 1943 when 1 1/2 million died.

But we could easily get a disaster at the Melbourne Cricket Ground similar to that at Peru on 26/5/66 when the National Team was playing against Argentina.

Argentina was leading 1 Nil when 2 minutes before the end a Peruvian Winger scored but the goal was disallowed by the Uruguayan Referee because of rough play. The crowd disapproved and spectators leapt the barriers. The referee suspended the game and he and the players left the field and barricaded themselves in the dressing rooms. The Police panicked, fired revolvers into the crowd and used tear gas and dogs. Confused and fearful, many people tried to flee the stadium by the few exit doors that were still not locked. They fought amongst themselves and the weaker were trampled underfoot and asphyxiated. The crowd smashed every window in the stadium, surging into the streets and broke into stores, burnt buildings and overturned cars. Thieves made the most of the opportunity to steal wallets, jewellery and other valuables from the dying and injured scattered all over the ground. By the time it ended there were 1,000 casualties with 300 dead.

CROWD BEHAVIOUR AND PANIC

7. Pan was the son of Hermes and the daughter of King Dryops. He was the God of Shepherds and their flocks in the woods. When he awakened from his Sylvan slumber he uttered dreadful cries which terrified men and beasts and put them to flight. Pan's terrible voice routed the Titans who were at War with the Gods of Olympus. He caused the flight of the Persians at Marathon and helped Apollo in defeating the gauls at Delphi.

From Pan comes the word "panic" which describes the extreme terror by which people are seized and cause their flight. It can occur in closed buildings containing many people and limited exits. It occurs

at Sportsgrounds with large emotional gatherings and it can occur in an army which is looking at defeat.

The loss of reason in crowds differs little from animal reaction to fear with a variable response.

1. Stupor with a state of inertia;

2. Aimless agitation with individuals moving in senseless circles or backwards and forwards.

3. Headlong flight is not always accompanied by reason as shown by people throwing themselves from the tops of burning buildings to a certain death on the pavement.

All this is similar to the fear, terror and flight in animals faced with danger.

Stupor is mainly a visual phenomenon. An example is the Greek legend of Medusa who turned all those to stone who looked upon her dreadful face and the biblical story of Lot's wife who became a pillar of salt because she turned to watch Sodom being destroyed by a divine rage. In trying to stop noise by blocking the ears and unpleasant sights by closing the eyes, the victim cannot localize the danger, loses his head and takes to flight.

The mere factor of belonging to a crowd is enough to change the behaviour of the individual. The behaviour of the crowd may also produce incongruous individual behaviour, but crowds are not always undisciplined. If they can retain discipline then panic behaviour may be prevented.

When an accident occurs in an enclosure the crowd rush for the same exits often avoiding those that are free of people. Individuals push and shove, they fight and they are squashed against the walls of the building. In the restricted space some are asphyxiated by lack of air, those who fall are mercilessly stamped upon and fatal injuries are caused by violence alone. Some individuals keep their heads at the beginning but they are carried along by the crowd and become victims like all the others.

Closed spaces always have an adverse affect as does fire, noise, darkness and large groups.

PREVENTION OF PANIC

8. a. Preventive measures can be used to prevent the occurrence or diminish the frequency;

8. b. (continued)

Once panic breaks out the consequences may be limited by facilitating evacuation and dispersing the crowd.

Groups of people such as armies can be trained and disciplined how to react in the event of a disaster situation, but it is extremely difficult to train and educate the whole of society.

In large gatherings of people there must be adequate access and adequate exits. A study of mass psychology ought to make it possible to understand the phenomenon better in years to come and to develop more effective means to reduce its consequences.

Man removed from his natural environment and fighting for survival in hostile surroundings does not know the rules for survival. Only an unshakable will has enabled some men to survive in cases that are not only heroic but physiologically incomprehensible.

Crowds may become depressed or excited. They will howl, shout the same words and repeat the same movements. The power of a delirious crowd is terrible. There is looting of vehicles and provisions of medicine and weapons and within a few minutes everything that might have been useful is damaged. Everything which remained of organization which might have been still functional may have indispensable workers wiped out.

Crowds may refuse to accept suggested means of relief, the inconvenience of the tragic disaster must be accepted without protest and without despair and without panic. It would be an advantage if civilized man accepted animal submission during these catastrophes. Man may suddenly find himself without house, family, transport and food and he is thrown into an inhuman abyss. His liberty disappears under marshal law. His dignity is drowned by frightening and soul destroying refugee centres. Respect for death may be ignored and in caring for victims the rules of human ethics may be rejected. Triage may have to be logical and inhuman owing to scarcity of remaining means of treatment. At Hiroshima there were thousands of serious injuries but 180 out of its 200 Doctors were killed or wounded and only 3 of its 45 Hospitals remained in use.

In the Mattmark disaster in Switzerland in 1965 an avalanche of ice separated from a glacier and buried

many workmen on a dam site. Within a few hours almost the whole of the Italian town from which the workmen had come arrived on the scene with uncles, aunts, wives, friends, the Mayor and the Parish Priest. Road blocks had to be set up to keep them out. Everyone who went through had to have a pass stamped by the Chief of Police and to say exactly where he was going and what he was doing. There was the problem of subversive elements. Within 24 hours some union officials attempted to cause a general strike of the workmen at the dam site and also the rescue workers. Other people tried to take the belongings and the vehicles of the victims under the pretext that they were relatives. The Police had to take expulsion measures.

Under great danger and difficulties the rescue operation went ahead, bodies were recovered and the avalanche was controlled. It had all happened inspite of great precautions. It was man against nature!

There must be a thorough study of disaster problems in whatever field we work and at whatever level we might be.

PLANNING AND PREPARATION

9. Following the initial horrifying impact of the disaster it is necessary to establish

Disaster	Communication	
Chaos	Co-ordination	Order
Confusion	Command and Control	

In turning chaos into order the Army command and control system has much to offer and the key is discipline.

Unless there is a plan and unless control can be established at the outset people will be rushing around in circles.

"He jumped on his horse and rode off in all directions at once"

Stephen Laycock.

There is a need to marshall the forces so that assistance can be given quickly and efficiently. In many cases this will mean keeping out of the area numerous well meaning voluntary untrained helpers who only serve to make the situation worse.

COMMUNICATIONS

10. In the Army there is a specific wireless net for the whole of the casualty evacuation system, linking the unit where the action occurred to the evacuation system, including helicopters and the chain of medical installations.

In most countries there are separate radio nets for Police, Fire, Ambulance, Hospital etc. It is not always possible to link them because of the conflict between separate organizations.

Disasters are frequently caused or aggravated by the intervention of man who now has extraordinary means of destruction at his disposal. Natural disasters are compounded by man made ones. At the same time modern technology offers extraordinary relief possibilities and it is in these capacities which disaster medicine exploits in studying the causes and effects of disasters.

The size of a disaster can place serious constraints on intervention. Where the peripheral zone remains intact the appropriate relief intervention measures will be more effective and easier to implement.

Disasters often cause an unpleasant strain between generous assistance and its rational use. There must be strict co-ordination of many modes of intervention and more intelligent use of resources and an absolute sense of priorities. When the extent of the disaster is out of all proportion with the means available disaster medicine must be able to decide what is essential and what is not.

It is urgent to strengthen national and international organizations whose endeavour is mutual assistance. We must overcome ideological barriers, political prejudices and commercial interests.

Disasters hit certain regions of the world with tragic regularity and it appears that the weakest peoples are often the most vulnerable. Their call for assistance is a constant factor which cannot go unheeded.

So long as men or society fail to acquire appropriate defences against disasters which afflict them, they cannot claim to play their part in progress.

There is also the matter of faith and religion. A Doctor must be ready to collaborate with those who whilst unable to dress the wounds of the disaster

seek to ease the pain of injury with the balm of faith, the recollection of eternal life and hope after death.

To establish command and control there must be a leader and he must be strong.

"Society may find itself broken down by revolution, riot and panic, but it always regroups around a leader."

Jean Guitton - "The Philosophy of Command".

THE ART OF COMMAND

11. "To order
To convince
To exact obedience."

General DeGaulle.

PREPAREDNESS FOR DISASTERS

12. Switzerland is one of the smallest countries of the world. It has long been neutral, but always has had a well developed system for defence against military and natural disasters. It has underground shelters and hospitals. A high percentage of its population are trained in first aid. It is one of the few countries of the world which has disaster medicine as part of its undergraduate medical curriculum. We should take its lead.

Similarly China has an incredible system of underground tunnels which are stocked with provisions and equipment.

Civilian medical practice cannot change immediately to emergency disaster medicine unless there is training and preparedness. There is a need for double training of the medical, nursing and paramedical personnel. Without it we will be in trouble.

Throughout society there are some medical personnel dedicated to the field of disaster medicine. Unfortunately it is not sufficient that they are prepared to do this. They must also stimulate their colleagues.

Standardization of equipment and drugs is essential. There is absolutely no place for sophisticated

treatment of any kind.

Intervention must be precise and almost a reflex action in order to avoid waste of time, effort, personnel and material.

There is a need for stock piling of disaster medical supplies and other provisions and equipment. Every Doctor and every Nurse and every Hospital ideally should have reserve supplies, but they are costly and they deteriorate and are pilfered.

PLANNING AND ORGANIZATION OF THE EMERGENCY MEDICAL SERVICE (EMS)

13. a. Improvements are essential both in and outside hospitals in all countries;

b. An efficient EMS is indispensable to the welfare of the community;

c. The EMS needs the recognition of the emergency and first aid to be commenced by bystanders, then initiation of the EMS response system by telephone, radio etc., treatment at the scene by anyone available, evacuation, treatment in the emergency department of the hospital, the development and operation of these elements must be co-ordinated by a responsible group with adequate communication;

d. Planning for the EMS must be based on an analysis of the needs within a region;

e. Clearly designated Government Authority is essential with co-operation between local and central government;

f. There should be an essential emergency despatching system with provision for ambulance despatch, medical consultation on two-way voice radio;

g. Critically ill and injured must be taken to hospitals with advanced emergency facilities.

TRAINING OF NON-PHYSICIANS

14. a. The general public should be trained in the recognition of emergency medical conditions and basic First Aid.

b. Selected groups such as Policemen, Firemen,

Ambulance Drivers etc. should be taught advanced first aid and CPR.

c. Training of Para-Medical Personnel should receive the highest priority;

d. All medical students and doctors should be educated in basic emergency care and advanced life support.

First Aid training by members of the public is important not only for disasters but also the care of the victims of road crashes. It should be introduced into all secondary schools. There are some countries such as Switzerland and Germany where the gaining of a vehicle driver's licence requires a preliminary training in first aid. In South Australia it is in fact the policy of the following organizations :

The Royal Australasian College of Surgeons;

The Road Safety Council of South Australia;

The Australian Medical Association;

The Royal Australian College of General Practitioners;

The St. John Ambulance Association;

The Red Cross Society.

Inspite of this the response from recommendations to the Government has been very slow.

TRAINING AND PRACTICE

15. Unfortunately skills are easily lost. There must be constant training and retraining and exercising of the skills.

Following the initial impact of the disaster there are secondary affects and this includes the problems of disease and epidemics.

In the middle ages it was thought that air imprisoned in the earth was diseased and when there was a volcano the diseased air was released with resultant pestilence. Certainly the natural disasters have been followed by plagues but this has usually been due to a breakdown in hygiene.

"Diseased nature often times breaks forth
In strange ruptures
Oft the teaming earth
Is with a kind of colic pinched and vex'd

By the imprisoning of unruly wind
Within her womb"

Shakespeare - "Henry IV"

In the wake of the disaster the parasites, insects and rodents become aggressive. Under such circumstances rats and insects are often more resistant than man and carry potentially dangerous bacteria and viruses. Snakes take refuge in the high placed areas with people above the floods. Epidemics develop because of damage to water supply (typhoid, cholera, amoebiasis) and to parasites (malaria and typhus). We tend to forget the epidemics of the past but the history books are full of them including in our own country.

Communications have become disrupted making the transport of relief difficult as well as evacuation. Problems develop with water and waste disposal and illness. Mass diarrhoea is crippling to a group of people.

THE SYNDROME OF CONVERGENCE

16. Although disasters are infrequent the public should be kept aware of the situation. Most of the victims are impassive and malleable, but a great problem arises with convergence, which is the informal, spontaneous movement of people, messages and supplies inward to a disaster area.

We think of a catastrophe as a signal for everyone to scatter far and wide but this is not so. Most of the victims are initially co-operative and controllable. They rarely constitute a major psychiatric problem, but wait until the news gets out! All hell breaks loose!

The following occur:

a. Many people genuinely want to help but only cause chaos and confusion and clog the system;

b. There is a great communication convergence eventually resulting in extreme anxiety and irritability;

c. Supplies come from everywhere. Initially they are useful but in a short time there is a conglomerate mass of useless articles sent in with virtually no preliminary thought;

16. (continued)

Why do people converge?

d. There are those who temporarily evacuated the area and then drifted back;

e. There are those who are anxious for friends and relatives;

f. Helpers come from all directions, many of them with no training and no facility to assist;

g. The curious spectators. Even the victims of a disaster once their own safety is ensured, become intensely curious about the situation;

h. The exploiters and looters.

Rather than have everyone flooding into the area to seek information there should be a central clearing house for information with everyone feeding into it and the various aspects being rapidly sorted into orderly bulletins. In this regard the media can be of great assistance.

MASS CASUALTY MANAGEMENT

17. The basis of primary care is labelling, packaging and despatching or diagnosis, arrest of haemorrhage and establishment of airway and evacuation.

A rapid precise diagnosis is necessary in order to classify.

The casualty must be conditioned or treated so that the degree of urgency is lessened.

Victims at triage sites must be rapidly evacuated to places outside the disaster zone.

The main parts of the management are:

a. Triage

b. Treatment

c. Transportation

All three are necessary at every facility.

MEDICAL CARE AT THE DISASTER SCENE

18. First aid or primary life support is simple. Regardless whether it is done by a Doctor, Nurse, Ambulance Officer or a First Aid Worker, the main functions are as follows :

a. Assessment of the number and severity of casualties;

b. Establishment of an airway;

c. Arrest of haemorrhage;

d. Relief of pain.

In the Vietnam War there was a tendency to commence intravenous resuscitation in the field and the same thing happens in the civilian scene. Unfortunately the time spent in doing this is time not available for arresting haemorrhage and establishing an efficient airway. There is no point in spending a lot of time trying to resuscitate someone fatally injured whilst several other casualties are dying from haemorrhage and annoxia which could be quickly managed by efficient pressure bandaging and airway establishment.

In the civilian disaster it is unlikely that there will be medical organization at the scene and it is therefore necessary for teams to go forward but they must proceed in an orderly fashion.

Assessment - the first team should rapidly assess the situation, number and severity of casualties and the tactical situation with regard to further disaster occurring.

The resuscitation team must initially restrict its activities to simple rapid methods. There is no place for lengthy resuscitative procedures on one particular patient.

Surgical teams may be called forward if there are victims which are trapped and cannot be extricated. They should not go forward unless requested. They clutter the area and in any case they do their work best in situations where they have all their facilities.
Evacuation teams - in most cases it is best to get rid of as many victims from the disaster area as possible so that the work of clearing the area and finding trapped victims can proceed.

The process should be integrated rather than step by step.

Rapid assessment is essential.

TRIAGE

19. The word has a French origin and originally meant the sorting or culling of coffee beans. The broken beans were discarded and the good ones retained. With casualties the situation is reversed. It is the broken bean or injured victim who is kept. He is then sorted into priorities depending on urgency of resuscitation and surgery. This establishment of priorities is important. Expertise only comes with experience. Unfortunately it may occasionally be necessary to put aside some of the shattered beans.

Unfortunately triage may at times produce a conflict of medical ethics but at times society must take priority over the individual.

Triage must be rapid, precise and complete. The main object is diagnosis. It must be :

a. Rapid so as not to delay treatment of that patient nor those awaiting their turn;

b. Precise and reliable. An error in diagnosis could cause a serious casualty to be classified amongst the slightly injured and left unmonitored with fatal consequences.

c. It must be complete particularly with regard to multiple injuries necessitating close inspection of the back of the patient and the back of the head.

Preferably the Doctor performing the function should be experienced, quick-witted and able to divorce himself from the emotions surrounding one particular patient.

PRIORITY 1 (About 20% of total casualties)

20. These require urgent resuscitation and surgery. They include serious, uncontrollable haemorrhage, serious burns to the face and respiratory tract and injuries interfering with airway, such as crushed chest, pneumothorax, etc.

PRIORITY 2 (20%)

21. Early treatment is necessary but can be deferred. These include vascular wounds, abdominal injuries, compound fractures, major burns and cranio-cerebral injuries.

PRIORITY 3 (40%)

22. Only require outpatient treatment and includes lightly wounded casualties, small closed injuries and fractures and second degree burns up to 15%.

There is a need to avoid congesting hospital facilities or paralysing surgical teams with casualties who could be treated as outpatients. Hence there is a need to train para-medical personnel and to educate the public since in cases where there is an imblance between needs and means the former must be reserved for absolute necessity. Casualties in this outpatient category must be able to move about and look after themselves.

PRIORITY 4 (20%)

23. These include the extremely serious lesions with minimal chance of survival such as gross multiple injuries, gross burns over 50%, massive un-controllable haemorrhage from major trunk vessels. These casualties need to be isolated and sedated. Despite the tragedy of the choice it is illogical to make hopeless attempts to save them while there are other treatable patients who could be saved. This is the pitiless characteristics of triage in major disasters.

Each disaster determines different percentages for different lesions.

THE EARLY CONDITIONING OF CASUALTIES

24. This phase is of great importance because it will affect the future of the injured person. Appropriate treatment can avoid casualties and it also can change the priority.

EVACUATION

25. This is a basic part of triage and it must be done

rapidly. Triage sites must be cleared quickly and the casualties moved to a location outside the disaster area where they can be reasonably treated. The scale of the disaster, the availability of intact hospitals, the evacuation possibilities, state of roads and weather all snow a need for planning before the disaster occurs and it requires close co-operation with local authorities.

Inspite of all precuations there may still be a great disproportion between needs and means. Consider the evacuation of 10,000 casualties.

a. By light helicopter with a 30 minute round trip with 3 casualties per trip and 12 hours flying per day, would require 130 helicopters.

b. By road, a 2 hour round trip with 4 casualties and 24 hour transport, would require 400 ambulances.

HELICOPTER EVACUATION

26. I saw this develop in Korea and become common place in Vietnam. It gives a wonderful, rapid, comfortable evacuation, but there are still many problems. They need good pilots, frequent maintenance and they do not operate well at night and in inclement weather. A complete helicopter service would be extremely expensive.

DOCUMENTATION

27. A medical card must be instituted at point of injury and additions made to it along the line of evacuation. Observations, procedures etc. are recorded en route. This initial document forms the base line for ultimate treatment.

HOSPITAL

28. There is no point in early management and evacuation being efficient if the arrival at the hospital causes panic in the emergency department not geared to handle the number of critically injured when even minutes may make the difference between life and death. A radio message should already have alerted the triage team which will have checked equipment and suitable reception areas. The leader

of the triage team should preferably be the most senior and experienced surgeon available. The initial assessment must be rapid. Minor injured should be diverted to other parts of the hospital. Then there is a need for resuscitation and more detailed assessment. Once a situation of stability has been reached then priorities can be decided. Once again, documentation is imperative and a Medical Clerk is an important member of the team. Well meaning hangers on should be cleared out of the area.

The whole system of casualty management has changed and will continue to change. It will not be possible and indeed it will not be necessary for Doctors to do everything. There is a need to increase the standard and status of Ambulance Officers. There is a need for the training of "The Physician's Assistant" who will be able to carry out many of the procedures for primary life support. Inspite of their importance in certain situations there has been a temptation and a tendency for medical retrieval teams to proliferate with Doctors dashing off into the wilderness for some supposed calamity which may turn out to be a fizzer, when his place is best at the hospital. Without good communication the chaos of the initial disaster will continue. The whole community needs education in when they can help and when it is best for them to keep clear.

In Korea and more so in Vietnam I saw medical assistants carry out life saving procedures which I had previously thought were only in the province of a Doctor. Their performance surprised me and humbled me. Civilians from all walks of life can be trained in the same way. The problem is the infrequency with which their training can be put into operation. A disaster is just around the corner.

The work load of surgical teams is another justification for triage. In one hour a surgeon can treat one serious abdominal or chest wound or two major fractures or four soft tissue injuries. The rate might appear satisfactory but if 200 casualties are admitted to a hospital which is intact and manned by 8 surgeons and ancillary staff, there would be 100 treated after 24 hours, leaving just as many untreated.

THE PERSONALITY OF THE TRIAGE OFFICER

29. He does not have to be highly qualified but he must have considerable technical experience in order to make rapid, accurate diagnosis and to establish rigid categories which will determine the future of the injured person. But this experience must also be

be accompanied by human qualities. At times he will have to modify the rules of ethics and he will have to be merciless in abandoning a patient whose life is unlikely to be salvaged or another whose injuries are so complicated that they will clog the hospital theatre for many hours.

The making of these decisions sounds difficult but with experience and in the situation it is surprising how things work themselves out. I well remember in Vietnam two very seriously injured soldiers who were brought into the Army Hospital. I was the sole surgeon. One of the soldiers was a National Service man and the other a Regular Army Corporal. The young National Serviceman looked at me and said "Sir I know what you're thinking. You are trying to decide on which of us you will operate first. Take my corporal, you may be able to save his legs." These were magnificent words from a young man whose leg had already been blown off by a mine.

A talent for organization is essential. Speedy evacuations are often a question of personal initiative. The disaster situation is ever changing and unpredictable. But there should be a rapid return to normal treatment conditions, since the abandoning of patients is but a temporary expedient and the ability to adapt to the situation is an indispensable quality.

CASUALTIES IN THE HOSPITAL

30. Triage continues as it does throughout the whole of the chain of treatment.

a. Complete and precise re-assessment and diagnosis is essential to rectify initial errors of diagnosis and as complementary examinations are possible at this stage, casualties can easily be re-classified. When there is a single injury, evaluation is simple. With multiple injuries, the assistance of specialized surgeons may be necessary;

b. There are more means available to the treating Doctor than in the field but they must be adapted to existing needs;

c. The final stage at the Hospital is often governed by supplies and personnel rather than the need for evacuation. Further surgical and medical teams must be supplied according to the need and this can be calculated after a few hours

of team work. The Surgeon in charge may need to call out reserve teams but he must not run the risk of wearing out all the teams at once. He is the one who decides what measures should be taken if the inflow is more than they can handle and evacuation becomes impossible.

No matter how good the hospital, there remains the insoluble bottle-neck of the limits of the capability of the surgeon and his assistants.

There must also be considered the fate of patients already in hospital, particularly the aged and children, the seriously infirm and the insane who cannot easily be moved.

Hospitals need to be de-specialized and so must Surgeons. If basic principles are followed, the ophthalmologist or the gynaecologist can become an efficient triage officer and can also carry out wound surgery. Each experienced surgeon may have to become the supervisor of 4 or 5 operating tables served by occasional surgeons and each Doctor must be ready to step in as an occasional Surgeon. General Practitioners find this transformation less difficult than medical super-specialists. There has to be a concept of mass surgery rather than the individual surgery of peacetime. It is make-shift, lifesaving surgery without frills.

Disaster medicine is dependant on the availability of emergency community services and trained medical personnel, supplies and hospital facilities.

Although Doctors may need little medical advice they need considerable technical advice and training in logistics and mass therapy. They are likely to be out of their field when confronted with major crush, blast and multiple injuries.

For this reason I believe that disaster medicine should be included in all under-graduate and post-graduate medical courses. It must anticipate the future. Finally every Doctor and everyone else involved in disaster medicine must do his own preparation and training in order to be able in his turn to teach and prepare the Civil Defence Health Service Personnel.

The survival of humanity should not be left to Governments. We must all play our part in raising to the highest possible standard, the management of mass casualties.

Inspite of the necessity for speed and simple management at all levels, the Doctor must be ever mindful that his ultimate aim is not just to save the life or limb, but to play his part in the rehabilitation of the patient in order to return him as a useful member of society once the disaster is over.

CONCLUSION

31. Ever since the days of Empedocles man has fought the elements of earth, fire, air and water - he has worshipped them and invoked their powers. But times are changing. Early man endured and quailed before nature. Now it is partly tamed.

"No fire is so hot that water cannot quell it. No problem is so great that man's ingenuity cannot solve it"

"No matter what are the forces of nature man's indomitable spirit is stronger."

"The main difference between animal and human evolution is the unpredictable affect of human will which gives every human unique distinction and which has the potential to produce cataclysmic changes in the course of human history."

Rene Dubos "A God Within"

The situation which arises at a disaster is different from what anyone is doing in his normal life. It is imperative to adjust rapidly to the circumstances and return just as rapidly to normal conditions. It needs co-operation between all sections of the community. There is absolutely no place for barriers and jealousies between organizations. I well realize this statement is simple but it is not. Everyone thinks of the importance of his own role and it is for that reason that he has joined his particular organization whether it be police, fire, ambulance or whatever. But everyone must realize the importance of other organizations and his absolute dependence on them.

Disasters affect not only men themselves but the civilizations which have succeeded each other since man's appearance on earth a million years ago. Human life time is negligible.

The destructive aspects of disasters has been immense but man's intelligence has helped to overcome and partly utilize them.

"This world is a great shipwreck.
Let him save himself who can"

Voltaire

What is the present disaster situation? Apart from the problems produced by nature there are the other problems related to over-population, epidemics and self-destruction from nuclear energy.

Every State in Australia has a disaster plan and many of them are very good. But some of them are only on paper. They need to be practised and modified constantly depending on changing circumstances. It would be better if there were no more disasters and no more wars but with the present development of science and technology the risk of disaster inevitably grows. As to War it still remains one of the means to which men resort to settle their differences.

In the face of disaster the operations of the rescuers and their leaders will never proceed according to plan. Disasters arise in an unexpected manner. They are infinitely variable and do not have exact precedents.

Manoeuvres will have to be planned for the lapse of time covering alarm, discovery, implementation and routing all of which will suddenly be squeezed into the time of the emergency. The leader will have to make his decisions at a pace determined by his knowledge, intuition and personal influence when faced by the emergency, the uncertainty and the risk.

Swiftness of relief is the essential requirement for effectiveness. Every moment lost will mean another fatality.

The uncertainty due to contradictory information, broken communications and the effects of panic inevitably complicate the assessment of the situation.

Even the most complicated computer will never replace the eye and the ear and other sense when faced with the task of estimating indescribable chaos. Every crisis is an exceptional situation subject to the strongest tensions. To penetrate an area devoured by fire, to go down into a dark hole, to slide under piles of unsteady rubble needs great strength of spirit to accomplish the humanitarian mission above

personal safety.

Swiftness, uncertainty and hazards - such are the unknown factors which will condition the psychological training of those whose mission is to provide the service to the victims.

All nations will have to be convinced through the help of the United Nations that the last chance for survival of the human population is to learn to co-operate and this includes disaster medicine. As the world becomes smaller we must learn to live closer. A seminar such as this must convey its thoughts to politicians and governments in order to mobilize medical resources, military resources and government authorities towards a common goal. The opportunities are real.

The two super powers want nuclear war less than anyone. Neither of them are afflicted with suicidal tendencies. We must negotiate. Unfortunately unilateral disarmament takes away negotiating power.

There is no such thing as limited nuclear war. As soon as the first nuclear warhead explodes on the battlefield, all hell will break loose.

Catastrophes bring out the best and the worst of those involved. The best is evident in the unselfish help of money, time and lives that people are prepared to offer the unfortunate. The mass casualties from many disasters could be reduced. They are caused by apathy, complacency and ignorance. If we are not all capable of heroism at least we can attempt to act with consideration.

We remain quick to help those caught in disasters and equally quick to forget. Public indignation though fierce rarely lasts long enough to force changes and improvements.

Voluntary agencies like everyone else must be accountable not only to their donors but to the people they are helping. The sad irony is that in all major disasters there are surplus supplies of materials and money.

Man has an eternal struggle with his hazardous environment.

"Even a slow catastrophe is quite fast"

Gertrude Stein

"Everything in nature contains all the powers of nature"

Ralph Waldo Emerson

"When men lose a sense of awe there will be a disaster"

Lao-Tzu

Before you stretches a week of deliberations and a lifetime of hard work in planning for the management of mass casualties in disasters. I am afraid that you must expect more criticism than praise. But at the end of it all you will know that your efforts have been directed to the amelioration of the suffering of the victims of the disasters we know will keep on recurring. You will earn a place of esteem in society.

I commend your interest and your efforts and wish you well.

ANNEX D

MASS CASUALTY MANAGEMENT STUDY

7 - 10 NOVEMBER 1983

COMMONWEALTH/STATE/TERRITORY PRESENTATIONS

1. A transcript of the Commonwealth overview of arrangements at Commonwealth level to manage mass casualty situations is attached at Appendix 1.

2. State and Territory Authorities had been requested to prepare and present papers addressing the current arrangements within their State and Territory for planning for and managing mass casualty situations in accordance with guidelines prepared by the Working Party. These guidelines are at Appendix 2. The State and Territory papers are attached in the following sequence:

Appendix 3	Queensland
Appendix 4	New South Wales
Appendix 5	Victoria
Appendix 6	Tasmania
Appendix 7	South Australia
Appendix 8	Western Australia
Appendix 9	Northern Territory
Appendix 10	Australian Capital Territory

A COMMONWEALTH OVERVIEW

presented by

Dr W A Langsford

MASS CASUALTY MANAGEMENT STUDY
(Australian Counter Disaster College,
Mt. Macedon, November 1983)

CURRENT ARRANGEMENTS - A COMMONWEALTH OVERVIEW

1. Introduction

Before directing my comments specifically to the particular segment of this Study, I would like to publicly thank the Department of Defence, in particular the Natural Disasters Organisation, for extending an invitation to the Commonwealth Department of Health to provide joint sponsorship of this forum.

The potential problems associated with the management of mass casualties certainly needed highlighting. Thus, the opportunity to support positive activity whereby satisfactory response mechanisms and procedures could be introduced, to mitigate such a situation, was strongly supported.

It would be remiss of me not to acknowledge the interest and initiative of the Royal Australian College of General Practitioners, Victoria Faculty, in formally requesting such a seminar as far back as April 1981. Staging of such a Study takes a great deal of preparatory work - my Department agreed to participate in August 1981 and the Working Party, conceived in October 1982, has met frequently during this year.

This is not the first time close collaboration has taken place between the Departments of Defence and Health with seminars at Mt Macedon. In fact, this is the third occasion - the Symposium on Mass Burns Casualty Management in Australia (June 1979) and the Civil Defence Study - Protection of the Australian Public from Ionising Radiation (November 1982) being previous activities. The occupants of responsible positions frequently change, and it seems

to me logical that, on such important subjects as protection of human life and mass casualty management, the opportunity to review principles of prior planning and preparation should not be overlooked but be cyclically re-inforced.

2. The Commonwealth Situation

Judging by the amount of correspondence received by the Department, the general public, and of greater concern the medical fraternity, has little knowledge or understanding of the areas of responsibility, control and communication, between the various State and Commonwealth authorities charged with the counter disaster function. Perhaps some background to the current work being undertaken by the Commonwealth Department of Health will assist in placing our involvement in a clearer perspective.

As mentioned earlier in the Study, the management of counter disaster arrangements in Australia is a reflection of the constitutional position as it relates to the authority and responsibilities of the Commonwealth Government and the States. Constitutional agreements and other basic arrangements between the Commonwealth and State Governments are such that responsibility for counter disaster planning and operations, within State and Territory boundaries, rests primarily with the States and Territories. The Commonwealth has a supporting role, and, normally, only intervenes at the request of the State and Territory authorities. When provided, Commonwealth physical resources are normally employed under the co-ordination of State Disaster Authorities.

This 'normal' situation needs to be balanced with the recognition of the Defence powers granted to the Commonwealth under the Australian Constitution. Under plans for responsibility in times of national emergency, the Commonwealth Director-General of Health is responsible for ensuring that a proper balance between defence and civilian needs is maintained, in the use of medical personnel and facilities. Since the 1939-45 War, provision has been made for this Department to examine and report on this position, and to advise the Minister for Health on any action necessary to maintain the medical services to the whole community.

It is pertinent to remember that, from the mid nineteen-fifties onwards, when the Commonwealth Government re-activated a civil defence organisation, and the States accepted responsibility for raising and maintaining such a body, emphasis moved towards coping with the effects of natural disasters. This trend was formally recognised when, on strategic advice to the Federal Government, the National Disasters Organisation was created in 1974 to absorb the

Commonwealth Directorate of Civil Defence and to place emphasis on coping with natural disasters, whilst retaining the civil defence role. To my knowledge the situation has changed little since that date.

3. National Disaster Relief (Health) Committee

The trend outlined is reflected in Commonwealth Health Department disaster planning activities. Since 1950 the Department has serviced three important Committees -

Central Medical Planning Committee - 1950

National Medical War Planning Committee - 1966

National Disaster Relief (Health) Committee - 1977

The National Disaster Relief (Health) Committee formulates plans to meet demands on health services as indicated by strategic forecasts; plans the use of health resources to meet a disaster which may be foreseen (e.g. the outbreak of an epidemic); and plans health aid to meet natural disaster situations.

Established in 1977 to replace the National Medical War Planning Committee (NMWPC), the Committee comprises an executive element (Director-General of Health, members of a Steering Committee and representation from the Natural Disasters Organisation - at the moment the DGNDO, Major General K W Latchford), a panel of consultants drawn from the full range of health services (members of which are called on to give expert advice on a particular health problem) and a Steering Committee to prepare plans. (Current panel members have been appointed until 30 June 1984.)

The full Committee does not meet under normal peace-time circumstances unless the strategic situation indicates that there is a foreseeable threat. Fortunately, no meeting has been necessary since its formation.

However, supporting Committees and Working Parties of the National Committee meet regularly to consider relief measures which may be necessary to meet emergency situations which result from 'natural disasters'.

The Steering Committee on Disaster Relief (Health) consists of senior officers of the three Commonwealth health agencies and the Chairman of the two Working Parties - Materiel and Facilities Working Party and the Manpower Resources Working Party. The Working Parties

each consist of a representative of the three agencies. In addition, in each State a small committee has been established and consists, once again of senior local representatives of the three health agencies plus a representative from the State Health Authority.

3.1 Current Activities

The change in strategic assessment and policy in the 1970s, and the resultant replacement of the NMWPC by the NDR (H) C, coupled with staff restraints, has resulted in the vast majority of activity now being focalised in, and generated from, Central Office, Canberra. No change in this pattern is contemplated.

The Steering Committee on Disaster Relief (Health), provides the necessary catalyst to Commonwealth health counter disaster planning, and has developed contingency plans of materiel and manpower resources held by the Commonwealth Departments of Defence, Health and Veterans' Affairs. Five meetings of the Steering Committee have been held, the most recent being April 1983. The 21 April 1983 meeting completed a major review of all data developed over the years, such activity being preceded by extensive Working Party evaluation in 1982.

3.2 Disaster Information

Between them the Committees and Working Parties have surveyed the combined Commonwealth health resources and the data has been assembled in folders which show -

Hospital accommodation

Health Teams and their location

Lists of consumable items for a specified number of casualties -

e.g. drugs required for 500 casualties
dressings required for 500 casualties
essential hospital linen requirements per 50 casualties.

Office and home telephone numbers of key personnel throughout Australia (incl. State health authorities), Red Cross Blood Transfusion Service, Commonwealth Serum Laboratories, essential pharmaceutical and surgical suppliers, etc.

Emergency Rosters for Duty Staff, Evacuation Kits (for various types of transport), Public Health - list of suppliers, measures to be taken by public, surgical kits (details of contents). Other administrative aids - NDO procedures, Task Force Guide, emergency communications, time zone chart, etc.

3.3 Commonwealth Disaster Relief (Health) Committees

A national emergency may be declared in a number of emergency situations which are beyond normal resources. In the medical field, mass casualty situations beyond the capacity of normally available resources could occur in a number of circumstances e.g. following a severe epidemic, an extensive industrial accident (in any major city), a major cyclone disaster (e.g. Northern Australia), an earthquake in a built up area (e.g. Perth, Adelaide and perhaps Canberra), etc. Any of these could reduce local medical establishment and personnel resources, to a position where interstate aid and national co-ordination would be necessary to provide disaster relief.

Special mention needs to be made of the Commonwealth Disaster Relief (Health) Committees which have been established in each State. As indicated earlier, the three Commonwealth Departments are represented at senior level (Committee is in fact chaired by the local Regional Director of Health) with the relevant State Medical Disaster Co-ordinator being a member. Thus a strong link, on a personal level, is established between the Commonwealth and the State health body. (It is pleasing to note attendance at this Study of several members of the Commonwealth Committee in each capital city).

3.3.1 Disaster Relief Handbook

An important development by these Committees has been the creation of a Handbook of Commonwealth health resources etc. available from the Commonwealth for use if requested. A model handbook was developed in 1981 by the NDR(H)C Secretariat in Canberra and already editions for Tasmania, Victoria and South Australia have been completed and widely disseminated. Handbooks for the remaining States are nearing completion and should be ready for appropriate circulation by January 1984.

3.4 Operational plans

The Commonwealth Department of Health is very closely

linked into the activity of the Natural Disasters Organisation (NDO) when Commonwealth physical assistance is sought, through agreed channels, during the immediate post impact phase of natural disasters or civil emergencies. In fact, membership of the Medical and Health Committee in the National Emergency Operations Centre (NEOC) at NDO mirrors the Departments involved with the NDR (H) C.

The operational plans provide that immediately an alert is received, the Departments of Defence and Veterans' Affairs are contacted, as well as senior officers in the Department who require to be informed of any developments in the emergency.

Provision has been made for action to be taken at any time. Should the Department of Health's Disaster Service Liaison Officers be unavailable, the Department's Duty Officer may be contacted during weekends and public holidays. NDO is supplied with departmental duty rosters and any amendments are conveyed by telex. An emergency kit to facilitate work at the NEOC, is maintained in two large boxes, on the ground floor of the Department ready for immediate transportation.

Depending on the alert received, selected teams are placed on stand-by, and the three Commonwealth Departments prepare to obtain and pack stores as required.

The Health Department has made provisions for a roster system to operate should the NDO have to be activated. This provides for two officers, one at a very senior level with authority to authorise aid, to be on duty at NDO at all times during the emergency. There is futher 'back-up' in the Department where the alternate DSLO can follow-up requests for aid and to liaise with Regional Officers.

During an emergency the prime function of the Regional (Commonwealth) Committees would be -

(i) if in the State not immediately affected by disaster; to arrange provisions, packing and despatch of Commonwealth aid as requested;

(ii) if in the State where disaster has occurred :

(a) to arrange receipt and delivery of Commonwealth aid to State Health Authority;

(b) to provide hospital accommodation;

(c) to assist State Health Authorities in maintenance of health services to the community.

In all the plans prepared it has been recognised that the State or Territory Health Authorities -

(i) would remain in control

(ii) would prefer to retain casualties within the State.

It is recognised that the Commonwealth would be a back-up only to the State which in most instances has far greater health resources available. However, some States may lack mobility and it may be more satisfactory to move Commonwealth resources to an area, using Commonwealth aircraft rather than re-allocating State resources which may be needed to support the disaster area. However, it could well be that most of the States have very little 'fat' in the system and consumable supplies may only be sufficient for as short as a week under normal usage rates. Under disaster conditions Commonwealth aid would be welcome.

It appears that in most instances the States could cope with most emergencies and may require only limited aid in specific areas, e.g. special vaccines, a hygiene team, a surgeon in an isolated area. However, the Commonwealth would be expected to provide aid in a massive disaster and, I believe, Commonwealth health disaster relief plans have a degree of flexibility to meet most emergencies.

Example

By way of example I might mention that with Tropical Cyclone 'Max' which passed over Darwin in March 1981, and can perhaps be best expressed as a half-strength Tracy, the degrees of Warning, in accordance with NATDISPLAN CYCLONE for Health Services, were developed right down to contact with local Canberra Hospitals, as to the possible need for supplementary medical teams at 3-6 hours availability. Many of you will be aware of the annual COMCOORD Exercise, conducted by NDO, which ensures regular practice in the 'mock' provision of medical manpower and material.

4. NDR Medical Register

Because of the importance of the medical profession in almost any emergency it is desirable to have additional information available so that, should the need arise, an equitable allocation between emergency and normal activities could be made. The information contained in the Medical Register is strictly confidential and considerable security surrounds access or distribution of data. The information is on computer file and you might be interested to know of the types of reports

which are updated every three months for confidential retention by our Regional Committee Secretariat. Examples are:

Alphabetical List of Doctors
List of Specialists
List of doctors in Armed Services
Doctors in each hospital/institution
Summary of doctors in each Post Code
Summary of doctors by age and dependants
Summary of doctors in each speciality
Summary of doctors - Present Medical Activity

Contribution to the Register is purely voluntary and, in fact, far less than 0.5% of doctors express an unwillingness to assist.

Following the merger of the NDR Medical Register into the Central Register of Medical Practitioners (CROMP) computer-based registry in the Department, a substantially improved NDR data file now exists.

Special ADP programs have improved follow-up procedures for the Register and survey action is now initiated, on a national basis, from Canberra.

There are now 28 000 doctors on the Register and over half of these have been surveyed in the past eighteen months.

The survey form had not been reviewed for nearly fifteen years, except for administrative detail in 1981. Many of the bottom questions were varied by the Steering Committee in April 1983, and following some computer programming work, new forms will be available for the first survey in 1984.

Disaster Medicine

I would now like to turn for a moment to the general subject of disaster medicine. Many of the remarks of our Keynote Speaker are worthy of frequent and emphatic reaffirmation.

There have been numerous instances of overseas disasters in recent years, and for example, the 1976 China earthquake with a million lives lost, earthquakes in Italy in 1980 or Japan this year, and the terrible damage by cyclone to Bangladesh in 1970, when between 300 000 and one million perished, come readily to mind. The potential for disaster exists equally in Australia, and it was certainly fortuitous that there was minimal convergence of

population with the Ash Wednesday bushfires in Southern Australia. Are we to continue to be so fortunate?

I am heartened to find that a vibrant body known as the International Society of Disaster Medicine has already conducted three World Congresses on Disaster Medicine, with the noteworthy support of such bodies as the Office of the United Nations Disaster Relief Co-ordinator and the World Health Organisation. Locally, the formation of the Australian College of Emergency Medicine in the middle of this year can only but help improve the situation in Australia. Worthy contributions from the various para-medical sources and the community bodies such as St. John Ambulance Association, Australian Red Cross Society, and the National Heart Foundation in the fields of first aid and C.P.R. should be supported at every opportunity.

My attention was drawn to a recent paper given by Dr Marcel R Dubouloz, Vice President of the International Society on Disaster Medicine, at the First National Civil Protecton Week in Tunis, May this year. I am sure Dr Dubouloz would not mind if I quoted five paragraphs of his lecture, for they are so relevant to our deliberations during this Study.

> "Should Disaster Medicine be taught? Resolutely and unreservedly I would say 'yes' although its teaching is difficult as it is mainly a question of simplification of medical assistance, simplification of therapeutic means to be used, simplification of methods of treatment, cooperation with other sectors, abandoning individualism for collective deeds, etc.. Now, these do not involve innate reflexes in most physicians but they should be acquired.
>
> As far as Disaster Medicine is concerned, in my opinion one should resist the temptation to a certain trend which is prevailing now in every-day medicine, especially in hospitals, whereby the most sophisticated means must be used both for diagnosis and therapy. To be efficient in disaster situations everything should be directed towards one goal avoiding being grapped by the concept that this medical branch can be assimilated to intensive care medicine as it is practised in hospitals, for example. The confusion is, unfortunately, much too frequent, especially in Western University Clinics.
>
> Disaster Medicine is, in fact, a mass and multiple trauma medicine. It is rather difficult to convince

health specialists that efficiency can be achieved with little means, provided, of course, that the material, drugs and techniques are adapated to circumstances, i.e. that all these elements have been investigated, selected according to the cases for which they must be kept ready for use.

Everyday medical practice cannot be switched over to emergency disaster medicine stage by stage as if there were only a difference of degrees in the stages; one must leap over a deep ditch. Therefore, it is imperative to be able to rely on trained personnel who can make decisions according to circumstances and events. I do not believe that this can be improvised. In the medical field, as in many other fields, efficiency calls for a number of conditioned reflexes and these are obtained essentially by practice, hence the need for a double training, theoretical and practical, of the nursing and paramedical personnel.

Everyday medicine is most of the time costly, not necessarily in terms of finances, but because it is time-consuming, drug-consuming and needs a large paramedical personnel, technical means etc. In times of disaster it is essential to be as efficient as possible at the lowest cost possible and these two requirements are neither contradictory nor exclusive."

I commend the whole article to you for future reading.

From adversity and conflict in the world today we learn from the experience of others. During 1983 the Journal of the Royal Naval Medical Service and the British Medical Journal have carried articles on the British experience in the Falkland Islands campaign. Almost every article made a common comment - 'medical support required much improvisation at all levels'. Perhaps the most noteworthy book on the subject of Disaster Management is by Dr Edwin H. Spirgi. Dr. Spirgi is, or perhaps 'was', located at the Arab Research Center for Injuries, Beirut, Lebanon. His book covers very succinctly the various aspects of Disaster Management, Disaster Planning, Training in Disaster Management and our Study theme of Mass Casualty Management. I believe the College has purchased a copy and it is strongly recommended to all State Health Authorities as an important reference document.

State Preparedness

Mention of State Health Authorities responsible for counter disaster activity brings me back to where I first started. The responsibility for counter disaster planning

and operations, wthin State and Territory boundaries, rests primarily with the States and Territories - the Commonwealth has but a supporting role.

I hope that I have illustrated our endeavours, and willingness to help, should ever the need arise.

My Director-General, when extending invitations in July, asked State health bodies to forward by early September a paper on current and planned arrangements within the States and Territories for mass casualty management. A varied assortment from but four sources arrived by late September and the rest dribbled in by late last month. Disaster planning is a thankless task. When the subject is broached half of your associates will regard you as mad for ever contemplating the unthinkable - the other half will simply ignore you. But I trust the response to a mass casualty situation would be a lot quicker in some areas than the time response with paper contributions experienced recently.

I join with you in listening with interest to State and Territory arrangements throughout Australia for the handling of mass casualties. Thank you.

(W.A. Langsford)
Commonwealth Department of Health

APPENDIX 2
TO ANNEX D

GUIDELINES FOR STATE/TERRITORY PRESENTATIONS

GUIDELINES FOR MEDICAL/HEALTH RESPONSE

In your paper would you please address the following topics in the order shown :

1. The authority/ies (relevant legislation, state and functional disaster plan, etc) under which the medical/health response to a mass casualty disaster is organised and co-ordinated. (Please attach a copy of the relevant documents.)

2. The organisational structure to provide the response:

   (a) at State/Territory level; and

   (b) at regional or lower level, as appropriate.

   (Please provide diagrams)

3. The planning structure that exists to develop and maintain medical/health response plans, indicating composition of committees, review procedures, frequency of meeting, etc.

4. The operational structure to implement medical/health plans in a mass casualty disaster situation, indicating:

   (a) key operational appointments responsible for the control and co-ordination of the medical/health response,

      (1) at State level; and

      (2) at disaster site level.

   (b) the particular systems (e.g. warning, callout, communications, operational reporting, stand-down and debriefing) which are employed; and

   (c) any specific medical headquarters/EOC arrangements.

5. Special aspects, including :

   (a) composition of medical/health teams (to include first aid and triage teams, as relevant);

   (b) patient record cards;

   (c) casualty movement systems and procedures;

   (d) identification of medical/health personnel (e.g. helmets, tabards, armbands, etc);

   (e) arrangements for including casualties in the National Registration and Inquiry System (NRIS);

   (f) medical equipment and supplies, including specialised groups providing support (e.g. Blood Transfusion Service).

APPENDIX 3
TO ANNEX D

THE QUEENSLAND ARRANGEMENTS

presented by

Dr D Kelly

QUEENSLAND

POSITION PAPER

MEDICAL DISASTER SITUATIONS

1. The authority to formulate such a plan is given under S 9 and 10 of the State Counter Disaster Organisation Act 1975-78.

2. The organisation structure to respond is through the Disaster District Co-ordinator as per Annex C of the State Counter Disaster Organisation.

3. The planning structure for a medical response is per the Medical Disaster plan.

   This plan has been circulated to all major state hospitals. Its relevance is mostly to the SE area of the State and to the Brisbane area in particular.

   A committee consisting of representatives of the Medical Superintendents of the eight metropolitan hospitals, SES, Ambulance and Police Department review and update this plan at approximately yearly intervals. It was reviewed in July, 1982.

4.(a) A medical co-ordinator is on constant call - the call out being by a "beeper system" initiated from the Police Department. A deputy is nominated should the medical co-ordinator be absent.

   Should there be no response to the initial call, arrangements are provided to contact a Departmental medical officer - one of whom is always on call.

   This co-ordinator acts in that role in a metropolitan disaster or during a disaster in another district.

   In the former situation, by radio he can communicate with the two major and six support hospitals and with the disaster site to ascertain:

From hospitals

(i) Immediate bed availability both total and specific

(ii) Possible bed availability

From the disaster site

(i) The overall number of casualties

(ii) The numbers of casualties by type

(iii) Specific requirements of specialised teams at the site - personnel drugs and equipment

(iv) Increased, and later relief personnel

He allocates casualties to different hospitals according to bed availability and case type and informs these receiving hospitals.

At a state level, he provides such specialised assistance in personnel and for equipment as is required from the metropolitan area or prepares for reception of casualties.

This request is from the local Medical Superintendent through the Disaster District Controller (Police Inspector) to the Brisbane Police Major Incident Room to Co-ordinating Medical Officer.

(b) If possible a warning is given by telephone - otherwise the Telecom long range paging system (50 mile range) is used as a call out procedure. Inter-hospital communication is by radio capable of use by "Talk through" mode or by single station.

The communication from the site is by:

(i) Initially Direct Communication with the base hospital by a portable radio. This method could provide information prior to the Medical Co-ordinator being positioned.

(ii) Subsequently, through the Medical Co-ordinator.

An additional communication line is provided from the site to police communication room via a police officer attached to the Site Medical Officer.

The cessation of the disaster is notified to all hospitals simultaneously by radio.

Debriefing is as directed by the Police.

5.(a) In a Metropolitan disaster, one major hospital is the "Designated Hospital" for reception of casualties depending on which side of the river the disaster occurs.

On notification of a disaster the designated hospital despatches a Site Medical Officer (S.M.O.) and Assistant S.M.O. by police vehicle.

A medical team of two Medical Officers and two Registered Nurses to be despatched on advice from S.M.O. on arrival.

A second team comprised as above to be readied from the alternate major hospital and despatched as requested through Co-ordinating Medical Officer.

Future medical teams will be supplied from supporting hospitals.

All medical teams will report to S.M.O. on arrival to indicate their being on site and for designation of duties.

The duties of these teams is to perform resuscitation procedures of re-triage (if necessary) of casualties as well as stabilization of the casualty's condition prior to transport.

Organisation, size, equipment, tasks of secondary or subsequent Site Medical Teams may be varied according to the situation and need at disaster site (eg extraction surgery).

(b) Action cards are part of equipment of S.M.O. and Q.A.T.B. command vehicle carries triage tags.

A list of all personnel working at Casualty Evacuation point, Casualty Clearing Station or Aid post is kept by S.M.O.

(c) No person is despatched to hospital without a triage tag on which is recorded the injuries, and initial treatment.

The hospital destination of all transported persons noted by Q.A.T.B. The ambulance with patients must pass Ambulance Transport Officer who indicates destination and received notice

of patients from driver aid in this regard supplied by Police.

(d) Suitable clothing is provided for the S.M.O. before despatch from hospital - boiler suit, boots, safety hat, labelled overjacket, clip writing board, stationery, torch, action cards.

(e) No immediate arrangements.

(f) Blood transfusion service notified as part of call out procedure.

Notified by C.M.O. again when casualties known.

Aid Post - Minor on-site injuries treated at Aid Post manned by G.P.'s requested by S.M.O. through C.M.O.

Clergy to be requested by S.E.S.

Government Medical Officer called by S.M.O. to attend to deceased.

Initial supply of drugs will be made from designated hospital. Subsequent from Central Drug Store.

APPENDIX 4
TO ANNEX D

NEW SOUTH WALES MEDICAL/HEALTH RESPONSE

(MASS CASUALTY MANAGEMENT STUDY)

1. There is only a general legislative base for New South Wales Medical/Health response, as will be seen from the relevant parts of the Health Administration Act, 1982 (Appendix 1); of the Ambulances Services Act, 1976 as amended by the Health Administration (Miscellaneous) Act, 1982; and of the State Emergency Services and Civil Defence Act, 1972. However, there has been in operation for a number of years a Sydney Metropolitan Disaster Medical Programme (Appendix II), which it is proposed to replace with a NSW Disaster Medical Plan (Appendix III, see Section 3 below).

2. (a) In reference to the organisational structure of the Department of Health, NSW, (Appendix IV) it is taken for granted that any senior administrator would respond to a disaster situation as appropriate. However, the system has been, and is being further streamlined to provide an acute response, as set out in Section 3.

(b) The Regional Director of Health is responsible to the Secretary and Minister to provide the Regional response, utilising Regional resources and seeking additional resources through his contact with the Secretary. Again, however, the Regional and lower level response is streamlined, as set out in Section 3.

3. For most of the life of the Health Commission of New South Wales (1973-1982) a Sydney Metropolitan Disaster Medical Planning Committee was responsible for the regular review of a Sydney Metropolitan Disaster Medical Plan, with one of the medical Health Commissioners, Chairman of that Committee.

In mid-1982, prompted by the unpredictability of the Falklands War, the Health Commission of New South Wales adopted a number of changes, centred on the proposal that future plans for a disaster should be on a New South Wales Statewide basis, and that Regional and local plans should be subservient to the N.S.W. plan. This proposal was based on the assumption that services within metropolitan Sydney should be mobilised to help in any event which overwhelmed local health services in rural areas, and that country health services should be available to assist in a catastrophic event in the city.

The obvious corollary of this proposal was the conversion of the former Sydney Metropolitan Disaster

Medical Planning Committee to a N.S.W. Disaster Medical Planning Committee. This change in name was also accepted by the Health Commission, but the composition of the Committee, set out in Appendix V, was almost unchanged: it remained a large, parent Committee, with wide representation in its membership, and the intention to provide the opportunity for health planners to meet from time to time with a wide range of related services.

A small Standing Sub-Committee of this parent Committee was also accepted by the Health Commission, with the membership affiliations set out in Appendix VI, and providing the opportunity for senior medical planners within the bureaucracy to interact with representatives of the ambulance and police services, and with medical disaster planners within the Teaching Hospital system. This Sub-Committee, after frequent lengthy meetings, has now completed the proposed N.S.W. Disaster Medical Plan (Appendix III).

The proposed N.S.W. Disaster Medical Plan uses the terminology of Medical Controller, Medical Commander and Medical Liaison Officer, for which categories proposed terms of reference detailed in Appendix VII, VIII, and IX. A list of Medical Controllers now available for the N.S.W. Disaster Medical Plan is set out in Appendix X, and of Medical Commanders now available for the plan, in and from metropolitan Sydney - Appendix XI; a Medical Liaison Officer may be appointed by the Medical Controller, from the list of available Medical Commanders. As also mentioned, the proposed N.S.W. Disaster Medical Plan provides for Medical Teams comprising medical and nursing personnel to be sent from Hospitals to the disaster site; the composition and modus operandi of the Medical Teams are set out in Appendix XII.

Various working parties, listed in Appendix XIII, assisted the Sydney Metropolitan Disaster Medical Planning Committee, and produced reports which provide detailed information to supplement the concepts now set out in the draft N.S.W. Disaster Medical Plan. These Working Parties have been retained, but are convened only on an ad hoc basis as the need for revision or a particular problem arises.

In February, 1983, the New South Wales Minister for Health, the Hon. L.J. Brereton, M.P. asked Dr. J.D. Harley to conduct a review of the medical planning for disasters within the State. On 27 June, 1983, Dr. Harley submitted his Interim Report to the Minister, with the recommendation that the Minister endorse the Committee structure described above.

It should also be mentioned that in 1979, the then Director of the State Emergency Services and Civil Defence Organisation, Air Vice Marshall W.E. Townsend appointed Dr. Harley Chairman of the newly-formed Civil Defence Medical, Hospital and Health Committee to plan for a nuclear explosion or other catastrophic event involving metropolitan Sydney. This Committee was originally multidisciplinary, involving the various services, but on Dr. Harley's suggestion was reconstituted in 1981 with a more specifically health orientation to consider primarily health issues. The present constitution of this Committee is set out in Appendix XIV, and it is expected that this Committee would play a major part in co-ordinating Medical/Health Services in any response to a mass casualty situation. The Committee meets 3 or 4 times yearly, but has not met in recent months pending Ministerial response to the recommendations in Dr. Harley's review.

4. The philosophy of a revised N.S.W. Disaster Medical Plan, now proposed, is that events should be handled at local level unless or until it is obvious that local resources have been or will be overwhelmed; then handled at Regional level unless or until it is obvious that Regional resources have been or will be overwhelmed; and then subject to all requisite support which metropolitan Sydney and if necessary the rest of the State of New South Wales can provide.

The medical response to a disaster outlined in the proposed N.S.W. Disaster Medical Plan is based on the interaction of a Medical Controller, located in the Control Room of Central District Ambulance Headquarters in Quay Street, Sydney; a Medical Commander, at a Command Post adjacent to the site of the disaster; and Medical Teams, made up of medical and nursing personnel, working at a Triage Point, Treatment Area and Ambulance Loading Point adjacent to the Command Post.

In a disaster outside the Sydney metropolitan area, a Regional Medical Controller will also be based at the Regional Ambulance Co-ordinating Centre, and will maintain close radio and/or telephonic communication with the Medical Controller, who will be based in the Control Room of Central District Ambulance. The Regional Medical Controller and the Medical Controller are concerned with liaison with other services and provision of resources, whereas the Medical Commander is in charge of his Medical Teams within the field.

In a major disaster involving a large area, there may be a number of Medical Commanders and Medical Teams, but there will at any time be only one Regional Medical Controller in country Regions, and only one Medical Controller in all situations.

The Medical Controller will be in close liaison with the Ambulance Controller at the Control Room of Central District Ambulance; outside the Sydney metropolitan area, the Regional Medical Controller will be in close liaison with the Regional Ambulance Controller at the Regional Ambulance Control Centre; and the Medical Commander will be in close liaison with the Ambulance Commander at the Command Post adjacent to the disaster site. At all levels, it is expected that the closest possible communication and co-operation will exist between the relevant medical and ambulance officers: in the event of disagreement in a significant matter of mutual concern, the medical view will prevail.

It should be noted that the terminology of "Medical Controller" and "Medical Commander" does not include the former term of "Medical Co-ordinator". Instead, the third term of "Medical Liaison Officer" defines a medical officer who may be appointed by the Medical Controller to accompany the Police Commander, or otherwise to assist the Medical Controller in the performance of his duties.

Against this background:

(a) (i) The Medical Controllers listed in Appendix X are senior medical administrators, with particular concern for and/or experience in mass casualty management, based either in McKell Building or inner Metropolitan Sydney, and thus readily available to assume control at Central District Ambulance Headquarters in Quay Street, Sydney.

(ii) The Medical Commanders listed in Appendix XI are medical practitioners with a special interest and/or particular experience in intensive care, triage, mass casualty management and disaster planning. They are based in metropolitan Sydney, and available to travel rapidly to assume command at a disaster site, whether in metropolitan Sydney or elsewhere in N.S.W.

In addition, each of the State's 3 metropolitan and 8 country Regions has its own

Disaster Plan, listing appropriate medical practitioners to act as Regional Medical Controllers and Medical Commanders. It is expected that a Medical Commander from the Regional list will assume initial command, and may relinquiish this control, depending on experience and seniority, when one or more Medical Commanders from the State list arrives on the scene.

(b) The warning systems within the Medical/Health facilities are based on Ambulance radio communications, the State Emergency Services Quebec metropolitan network (linking the Health Department, Ambulance Headquarters, State Emergency Services, Blood Bank and some 20 metropolitan Hospitals by Motorola portable radio), contact of key individuals by telephone or Motorola Metro-Pageboy beepers, and the principle of a 'telephonic cascade', particularly within Hospitals, whereby defined officers have clearly-defined lists of other officers to inform of the occurrence of a disaster. In addition it is recognised that all available communications systems, including the Police radio network and the mass media, should be utilised in the event of a disaster.

It is emphasised that communications are fundamental to disaster response, and that Hospital switchboards in particular will tend to be jammed by incoming calls. For this reason particular attention is paid, in planning, to discussions with Telecom officers, to the provision of 'silent' lines and other telephones which by-pass switchboards, and to direct radio and telephonic links between Hospitals and Ambulance Control Rooms.

Operational reporting occurs through the formal lines of communication outlined above. In addition, a Police Officer with a portable Motorola radio will accompany the Medical Commander at the disaster site, to maintain communications with the Police Commander. In general, it is expected that a Medical Liaison Officer when appointed will accompany the Police Commander to further facilitate communications.

The stand-down decision will be ultimately made by the Medical Controller, in consultation with the Medical Commander, but the very nature of the continuing medical care of casualties and of the prolonged forensic and welfare activites necessitates a graded stand-down. The various

channels of communication outlined above will be employed for the transmission of this information.

Every effort is made to hold an initial debriefing meeting immediately after the stand-down. Depending on the extent of the disaster, one or more further debriefs will be held over subsequent weeks or months. Every effort will be made to involve all services in debrief exercises, so that activities at the interface with Police, Fire Brigades, State Emergency Services, Youth and Community Services and other groups and services, can be explored in addition to the strictly medical/health considerations.

(c) There are no specific medical headquarters/EOC arrangements which have not been dealt with above.

5. (a) The composition of medical teams is set out in Appendix XII, and their role discussed in Appendix III. In metropolitan Sydney it is usually possible to include appropriately-trained doctors (2) and nurses (4) in the Teams which some 20 nominated Hospitals undertake to send. In the country, experienced Visiting Medical Officers are often most appropriate for a Team, and the composition of Teams nominated by Regions vary according to the personnel available and other circumstances. Intrinsic to the proposed N.S.W. Disaster Medical Plan is the concept that Medical Teams from metropolitan hospitals will be available by rapid transport to disaster situations which occur in rural areas.

(b) The Police Department has overall responsibility for documentation of patients. In addition, the Ambulance Service normally maintains a health record of all patients transported. The triage officer will allocate the Red, Green and White labels to victims at the disaster site. Generally, every attempt will be made to keep relevant information with the patient, if necessary by notes on the label or the forehead. In hospitals, the record (however abbreviated) will be kept with the patient, and a central register of patient movement also maintained for identification and information purposes.

(c) The philosophy of casualty movement is to undertake only essential procedures at the disaster site, and to move the patient as rapidly as possible to an appropriate facility. It is

recognised that even a large country hospital can serve as little more than a clearing station in a major disaster, so that it is one of the earliest responsibilities of the Medical Controller to organise appropriate air and road facilities for the transport of victims to more distant facilities. In the metropolitan situation, it is the responsibility of the Medical Controller, in close consultation with Medical and Ambulance Commanders, to ensure a sensible and even distribution of casualties to the available hospitals.

(d) The Medical Commanders and the Doctors and Nurses in Medical Teams are clearly identified by white track-suits and labelled helmets and vests, as set out in Appendix XII. Ambulance officers wear their distinctive uniforms and the Ambulance Commander is identified by a labelled helmet and reflective vest.

(e) Arrangements have not yet been made to include casualties in the National Registration and Inquiry System (NIRS).

(f) The special equipment and supplies available in Disaster boxes throughout the State is summarised in Appendix II. In addition, plans are being made to call on many facilities which might not be more actively involved in a disaster response, such as for example as psychiatric hospitals, many of which have extensive back-up facilities. Close liaison is maintained with the N.S.W. Red Cross Blood Transfusion Service and with the Government Stores Department, and hospitals are expected to consider requirements for equipment, pharmaceuticals and blood in their disaster planning programmes.

It has been noted already that the N.S.W. Red Cross Blood Transfusion Service is included in the Quebec Motorola Radio Network, so that an early response may be sought, and close communications maintained.

NEW SOUTH WALES MEDICAL/HEALTH RESPONSE

LIST OF APPENDICES

Appendix I	:	Health Administration Act, 1982.
Appendix II	:	Sydney Metropolitan Disaster Medical Programme, 1976.
Appendix III	:	Proposed N.S.W. Disaster Medical Plan.
Appendix IV	:	Organisational Structure of the Department of Health, N.S.W.
Appendix V	:	N.S.W. Disaster Medical Planning Committee.
Appendix VI	:	Standing Sub-Committee of the N.S.W. Disaster Medical Planning Committee.
Appendix VII	:	Proposed Terms of Reference of Medical Controller.
Appendix VIII	:	Proposed Terms of Reference of Medical Commander.
Appendix IX	:	Proposed Terms of Reference of Medical Liaison Officer.
Appendix X	:	List of Medical Controllers.
Appendix XI	:	Panel of Medical Commanders.
Appendix XII	:	Proposed Composition and Roles of Medical Teams.
Appendix XIII	:	Working Parties of the Sydney Metropolitan Disaster Medical Planning Committee.
Appendix XIV	:	Civil Defence Medical Hospital and Health Planning Committee.

PLEASE NOTE : These references are not attached but are available from NSW Authorities.

VICTORIA

GUIDELINES FOR MEDICAL/HEALTH RESPONSE

MASS CASUALTY MANAGEMENT STUDY

1. AUTHORITY UNDER WHICH THE MEDICAL/HEALTH RESPONSE TO A MASS CASUALTY DISASTER IS ORGANISED AND CO-ORDINATED.

The Victorian State Disaster Plan (Titled Displan) established the guidelines, responsibilities and authority for several Government organisations for counter disaster plans and responses. The Health Commission of Victoria has the responsibility and authority under Displan for the Medical/Health response in disasters. The Medical Displan prepared by the Health commission of Victoria lays down the principles and operational procedures for the Medical/Health Counter Disaster response. A copy of Medical Displan is attached.

There is no specific legislation for Displan. The Minister for Police and Emergency Services arranged for the Chief Commission of Police and the Director of the State Emergency Service to revise the State Disaster Plan, and formed the Victoria State Disaster Executive Committee comprising various involved Government organisations to assist in the formulation of Government policy and to permit forward planning.

2. ORGANISATIONAL STRUCTURE TO PROVIDE RESPONSE

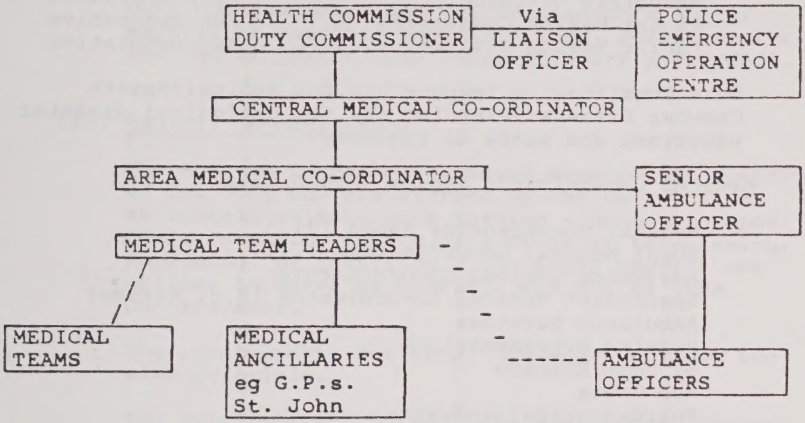
(a) At State Level

The responsibility for overall co-ordination rests with the Chief Commission of Police.

Activation of the Medical/Health response will be through the control room at Ambulance - Service Melbourne, to the Medical Co-ordinator Squad who in turn alerts the Duty Commission of the Health Commission of Victoria.

The Medical Co-ordinator Squad provide a Central and an Area Medical Co-ordinator from the members rostered for duty.

The command structure is shown in this diagram:



Liaison between the Health Commission of Victoria and the Police is via the Liaison Officer appointed by the Health Commission of Victoria.

(b) At Regional Level

The non metropolitan region of Victoria has 14 ambulance districts, each district with a Base Hospital, and each in the process of appointing a Medical Co-ordinator. A disaster occurring in one district will alert the ambulance service, who alerts the Rural Medical Co-ordinator. This Officer in turn will alert the Medical Co-ordinator Squad via the Control Room of Ambulance Service - Melbourne. A local disaster may be contained within the resources of the region, but the organisational structure exists for involvement of all the State resources.

The Medical Co-ordinator membership is drawn from eight areas around the Melbourne Metropolitan districts. Each Medical Co-ordinator is responsible for Medical/Health Counter Disaster Planning in his area involving Hospitals, Local Medical/Health facilities and doctors, and to liaise with ambulance and other Counter Disaster authorities.

3. PLANNING STRUCTURE

(a) The Victoria State Disaster Executive Committee.

(b) Health Commission of Victoria Disaster Planning Committee: comprises

Health Commissioner	Representative
Hospitals Division	Representative
Mental Health Commission	Representative
Public Health Division	Representative

This Committee is responsible for Medical/Health Counter Disaster Planning and for periodical disaster exercises and meets as required.

(c) Medical Co-ordinator Group: comprises

Medical Co-ordinator Squad (9)
Rural Medical Co-ordinators (14)
Assistant Medical Co-ordinators
Specialist Medical Co-ordinator (e.g. Marine)
Ambulance Services
Nursing Representation
St John Brigade
Red Cross
Pharmaceutical Industry
H.C.V. Equipment Officer
H.C.V. Communication Engineer
Ports and Harbour
Police
Telecom

With the power to co-opt other members.

This Committee meets every two months, reviews aspects of the Medical Counter Disaster Plan, and makes recommendations with regard to planning and operational procedures to the Disaster Planning Committee of the Health Commission of Victoria.

The members of this Committee are responsible for Disaster Planning within their areas and organisations.

Public Health is represented on this Committee, and the requirements in Disaster situations are provided in the first instance by the Medical Officer of Health in a particular area and should he require help, it is sought from the Health Commission of Victoria.

4. THE OPERATIONAL STRUCTURE

(a) Key Operational Appointments

(i) Duty Commissioner

The three Health Commissioners are rostered for duty. Upon an alert being received from

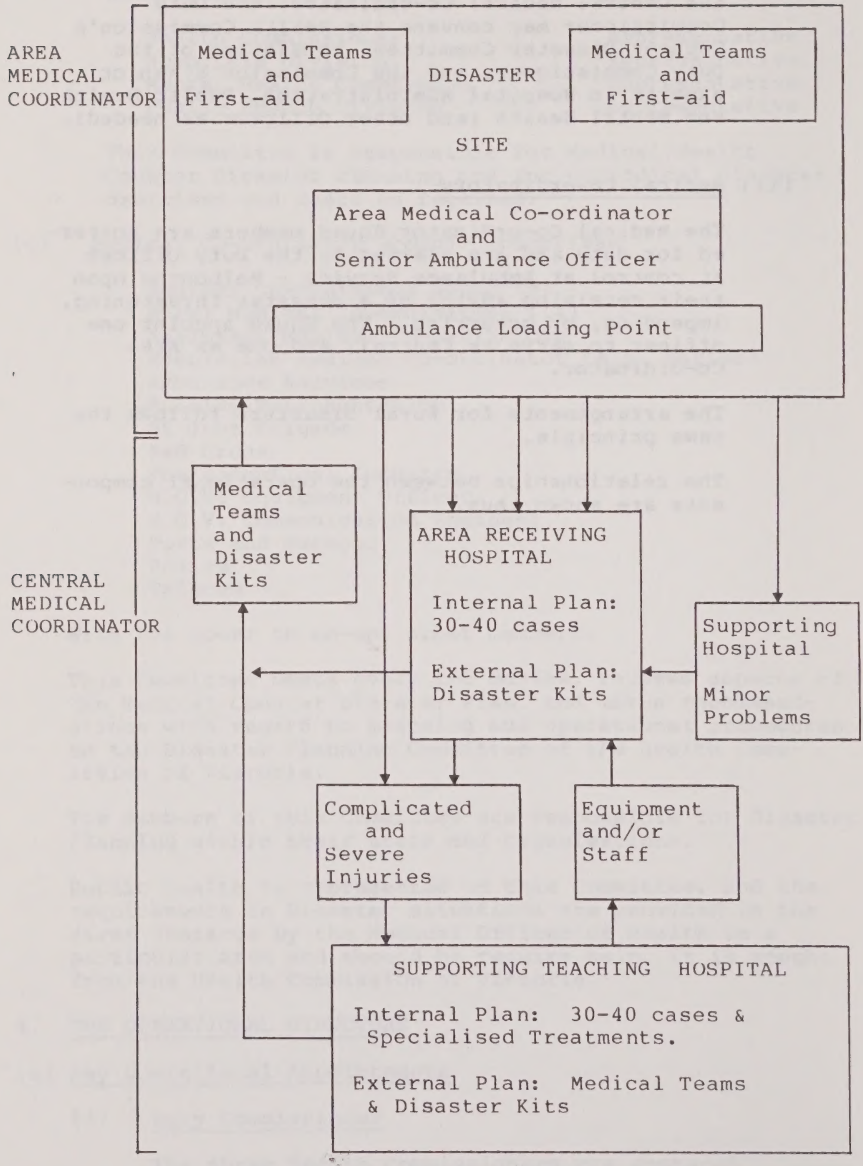
the Central Medical Co-ordinator, the Duty Commissioner may convene the Health Commission's Counter Disaster Committee, consisting of the Duty Commissioner, and the Commission's senior experts in Hospital Administration, Public Health and Mental Health (and other Officers as needed).

(ii) Medical Co-ordinators

The Medical Co-ordinator Squad members are rostered for duty and are alerted by the Duty Officer at control at Ambulance Service - Melbourne upon their receiving advice of a disaster threatening, impending, or occurring. The Squad appoint one officer to serve as Central, and one as Area Co-ordinator.

The arrangements for Rural Disasters follows the same principle.

The relationships between the operational components are shown thus.


AREA MEDICAL COORDINATOR
Medical Teams and First-aid
DISASTER
Medical Teams and First-aid
SITE
Area Medical Co-ordinator and Senior Ambulance Officer
Ambulance Loading Point
CENTRAL MEDICAL COORDINATOR
Medical Teams and Disaster Kits
AREA RECEIVING HOSPITAL
Internal Plan: 30-40 cases
External Plan: Disaster Kits
Supporting Hospital
Minor Problems
Complicated and Severe Injuries
Equipment and/or Staff
SUPPORTING TEACHING HOSPITAL
Internal Plan: 30-40 cases & Specialised Treatments.
External Plan: Medical Teams & Disaster Kits

(b) PARTICULAR SYSTEMS EMPLOYED

(i) Warning, Callout

The principle applied here is the removal of the responsibility of a false alert from the Alerting Officer and making the respondent responsible for the degree of response. The principle is to minimize loss of lead time in disaster situations.

The Medical/Health response is activated by the Duty Officer in Ambulance Control. In Metropolitan situations, the Officer calls the Medical Co-ordinator Squad members on duty via:

(1) A beeper pager;
(2) via Ambulance Radio;
(3) via Telephone.

Circumstances under which the activation is initiated include:-

(a) The anticipation of, or the occurrence of a potential disaster

(b) When a Medical Team is required at the site

(c) When the Casualty load exceeds normal Hospital capabilities.

The Central Medical Co-ordinator alerts the Duty Commission whenever an alert is called. This is done via telephone during office hours, or via Fairfield Hospital and Radio Pager after hours.

(ii) Communications

(a) Ambulance - VHF Radio
Radio Pager for MICA

(b) Medical Co-ordinators - Radio Pager
Emergency Vehicle Equipped with:
Ambulance Radio
Radio Telephone
Scanning Radio (receiving Police, CFA and All Ambulance Frequencies).

(c) Health Commissioners - Radio Pagers.

(d) Health Commission Emergency Operations Centre Telephones.

Future connections may include: Magneto Telephone to Police and Ambulance Control Radio on Disaster Frequency, & Ambulance Frequencies Scanning Radio.

(e) Medical Teams

at present use portable radios supplied by SES. Future to have own radios to communicate with Area Medical Co-ordinator.

(f) Hospitals

Magneto Telephones between Ambulance Service, supporting Teaching Hospital and supporting other Hospitals.
Normal Telephone
Some Hospitals have Radio Communications to Senior Officers, both in vehicles and portables.

(iii) Operational Reporting

Principle: Don't look behind
Pass information back

Team ⟶ Team Leader ⟶ Area Medical Co-ordinator

Area Medical Co-ordinator ⟶ Central Medical Co-ordinator

Central Medical Co-ordinator ⟶ HCV EOC

Frequency of reports varies with disaster, and is indicated by Officers concerned after initial contact.

(iv) Stand Down

Notified throughout system in consultation with all levels, in liaison with Co-ordinating Authority, the State Police.

(v) Debriefing

Medical/Health Debriefing procedures called by Health Commission of Victoria.

Debriefing at all levels called by Senior Officer at that level. Overall debriefing called by Police.

5. SPECIAL ASPECTS

(a) Composition of Medical/Health Teams.
Doctors at least 3, one experienced in emergency surgical techniques, and another in anaesthetics. The most appropriately experienced doctor shall be nominated as the Medical Team Leader by the Hospital.

Nurses - At least 2. Should have at least one year's post qualification experience in a critical care area.

The Team Leader is responsible for Triage; for his Team and to Area Medical Co-ordinator.

(b) Patient Record Cards
Triage, with assessment of treatment needs classifies casualties into

Top Priority	-	Do Now
Second Priority	-	Do Later
Walking Wounded	-	First Aid
Dead	-	Beyond Assistance

The Casualty is labelled with a folded card pinned to the person, which carries identification, injury and treatment detail.

On arrival at Hospital the normal record system is used.

(c) Casualty Movement Systems and Procedures.
Top Priority: Principle: Do as little as possible, do it to as many as possible, do it as simple as possible, do it as quickly as possible.
Patients loaded into ambulances with Senior Ambulance Officer and the most Senior of the Medical Staff present making assessments.
The distribution of casualties to Hospitals is under the control of the Central Medical Co-ordinator.

Second Priority: As for Top Priority, but less urgent.

Walking Wounded: Conveyed to first aid post by most appropriate means available. The Central Medical Co-ordinator may arrange Bus Transport if required.

Dead: Police responsibility, however public health should be consulted as to where and how the dead are buried.

(d) Identification of Medical/Health Personnel

Medical Command Post
Green Flashing Light
Written Signs

Area Medical Co-ordinator and Central Medical Co-ordinator
White overalls and boots
Yellow waterproof coat
Red reflective vest, labelled Medical Co-ordinator
White Helmet with Green stripes and headlamp
Vehicle has red flashing light for use during transit, and green flashing light for use when the Medical Command Post is established.

Medical Teams
White overalls and rubber boots
A waterproof yellow coat
Red reflective vest labelled "Doctor" or "Nurse"
White helmets labelled "Doctor" or "Nurse", with headlamp.

(e) Registration of Casualties
Undertaken by Police

(f) Medical Equipment and supplies and specialised groups

(i) Blood Transfusion Services
Arranged by Blood Bank

(ii) Local Medical Practitioners
Lists are being prepared by RACGPs
Report to Area Medical Co-ordination

(iii) First Aid Organisations
Include: St John Ambulance Brigade
Red Cross
Surf Life Saving - via Police Marine Headquarters
National Safety Council
SES
Ports and Harbours

(iv) Pharmaceuticals
Private Pharmacists are in the process of organising to cope with disaster requirements in an organisation similar in principle to Medical Displan.

(v) Additional Transport, eg Buses via Department Transport

(vi) Airport Disaster Plans

(vii) Marine Disaster Plan

(viii) Public Health special arrangements to cope with radiation, infectious and toxic agents.

(ix) Interpreters.

MASS CASUALTY MANAGEMENT STUDY

(TASMANIAN SUBMISSION)

1. Authority

(a) The medical/health response to a mass casualty disaster in Tasmania is organised and co-ordinated under the legislative authority of the Emergency Services Act 1976 and the Ambulance Service Act 1982.

(b) A State Disaster Medical Sub-plan has been set up for each of the three regions of the State, under the provisions of the Emergency Services Act.

(c) A revised Multiple Casualty Incident Plan is in the course of preparation by the Tasmanian Ambulance Service, under the provisions of the Ambulance Service Act.

2. Organisational Structure

(a) Control and co-ordination of the Tasmanian Medical Services during time of emergency/ disaster will be the responsibility of the State Medical Co-ordinator.

(b) The State Medical Co-ordinator will exercise control and co-ordination through three Regional Medical Co-ordinators (i.e. Southern, Northern, and North-West).

(c) The State Medical Co-ordinator shall be the officer holding the position of Director of Hospital and Medical Services in the Department of Health Services.

(d) The Multiple Casualty Incident Plan of the Tasmanian Ambulance Service is the responsibility of the Director of Ambulance Services.

(e) Further discussion will concentrate on this Multi Casualty Incident Plan rather than on the broader content of the State Disaster Sub-plan.

3. Planning Structure

(a) In response to a clear need for an update of emergency planning preparedness for mass casualty situations, the Tasmanian Ambulance Service is in the course of preparing a revised multiple casualty incident (M.C.I.) plan.

(b) This plan involves a combination of well-tried and accepted ambulance management principles, together with a number of new concepts including quantitation of injury severity, a triage algorithm and survival probability.

(c) In conjunction with the proposed introduction of the plan, a new method of mass casualty evaluation methodology for exercises has been adopted which, with a series of tactical games and scenarios, will allow for objective testing of both the operating procedures and the capability of the regional ambulance services to respond to a multiple casualty incident.

(d) The plan has been designed to be sufficiently flexible to allow for an innovative response by well trained personnel. The degree of implementation can be adjusted to fit the scale of the incident. Assumption of multiple roles and selective application is intended to allow the plan to be an effective vehicle for incident control in a variety of situations.

(e) A disaster plan cannot be complete or static. This updated version of the M.C.I. plan is no exception. For example, the plan does not deal with central communications breakdown such as might occur if the Regional Headquarters itself were involved in the incident. Nor does it effectively address itself to the problem of 'macro-disasters' where tight perimeter control is not available and the usual centralised primary triage system is not appropriate.

(f) Because of the need to maintain an ongoing process of preparedness planning, it has been decided that the plan shall be reviewed every twelve months. Submissions and comment from all interested parties are to be sent in writing to the Director. Relevant articles might also be included. Regional alterations must not be made to the plan.

(g) Following each implementation of the plan, either in a real situation or in an exercise, a debriefing is to be conducted. A report from the Regional Ambulance Superintendent and Training Officer is to be presented to the Director.

(h) Meetings are convened on an as necessary basis, with the Director of Ambulance Services acting as the catalyst for reviewing plans, and identifying current needs.

4. Operational Structure

(a) Command and Conduct of an Incident

(i) The conduct of an incident will be determined by its magnitude and the influence of modifying factors such as environmental problems.

(ii) By far the greatest practical application for the plan will be in the provision of an ambulance Field Commander at small incidents, such as vehicle accidents with 10-20 patients. In this type of incident the roles of triage, treatment and transport officers will not be clearly delineated as there will be sufficient staff to carry out these functions as required, just as a single ambulance crew would manage a "normal case". The Ambulance Field Commander would oversee this operation and personally undertake all the responsibilities assigned to his role in the plan.

(iii) As the incident size increases, the Ambulance Field Commander, although retaining responsibility, would begin to delegate parts of his function. The available staff would become insufficient to use normal ambulance operating procedures and there would begin to be a clear division in roles, although multiple roles would remain in an incident of any size in the sense that as one job is completed another is undertaken.

(iv) With any further increase in incident size, a Co-ordinating Officer would become necessary. The role of the Ambulance Field Commander is one of an operations manager. Until the arrival of a Co-ordinating Officer, he is in complete charge at the scene. It

is imperative that suitable officers be chosen for the roles of Ambulance Field Commander and Co-ordinating Officer well in advance of an incident. They should have an intimate knowledge of the M.C.I. plan, a strong background in recent road experience, and a proven ability to command. The selected officers should meet regularly to discuss their role and participate in simulated incidents at all levels to gain the broadest possible experience of plan application.

(v) Communications from the scene should originate from the Co-ordinator and Ambulance Field Commander, except for notification of vehicle arrival and departure. All communications must be in writing before they are transmitted. This places a control on the length of messages and provides an information source for later debriefing.

(b) Organisation of the Site

(i) The typical organisation of the M.C.I. site is based on the assumption that tighter perimeter control can be maintained. In an incident where the number of patients is overwhelming and the problem complicated by widely separated egress routes, the patient outbreak may be beyond the control of the single command structure set out in the plan. In such circumstances, multiple independent operations would need to be mounted with overall control transferred to a remote point. The M.C.I. plan does not address this problem.

(ii) The site of an M.C.I. would normally be divided into three broad areas:

(i) The actual incident site which would be of variable size and, especially early in the response, poorly defined.

(ii) A holding area through which all patients pass for assessment and treatment.

(iii) A transport area for management of patient evacuation.

(iii) The incident site is the initial area of operation with the primary response being by triage teams. The Ambulance Field Commander must ensure that all patients are identified and triaged in a systematic progression. Officers carrying out triage should report back to the Field Commander once their assigned task is undertaken, and must not instigate independent action. The triage teams should be closely followed by treatment teams.

(iv) At the incident site, the treatment teams should confine their management to initial resuscitation, e.g. airway management, splinting of major fractures, commencement of IV fluids, etc, and arrange for the swift movement of the patient to the holding area. More sophisticated management techniques should be delayed until the patient is removed from the incident site. It is extremely important that the movement of personnel and patients to and from the incident site be strictly controlled. Tight perimeter control should be an early priority with on-site command gaining the co-operation of other agencies particularly the Police.

(v) The holding area allows patients to receive a more detailed assessment and more sophisticated management. Non-ambulance personnel such as doctors, nurses and first aiders should be assigned to this area and not placed in the incident site where lack of familiarity with the ambulance operating procedures would greatly reduce their value. If the incident size is large, the Ambulance Field Commander may appoint a Holding Officer to manage the holding area. Within the holding area, patients should be segregated according to category to allow appropriately skilled personnel to work on a concentration of patients. "Category four" patients should not be held here but passed to another agency as soon as they are triaged. The patients should be arranged so that there is easy access for transport teams. Bulk equipment is also held at the holding area and the Holding Officer should notify the Ambulance Field Commander of any additional or on-going supplies required.

(vi) The transport area is used to load patients, and therefore must be close to, but not interfere with, the holding area. If posible there should be different routes for entry and exit of vehicles. If space is limited. it may be necessary to establish a loading point near to the holding area and a remote vehicle holding point. This should be avoided if possible as it involves increased communication time. Officers forming part of transport teams must report to the Ambulance Field Commander (or the Holding Officer) as soon as they arrive at the scene and not become involved in other duties. As patients are loaded for transport, they should be numbered sequentially in the space provided in the triage tag. A record should be maintained at the scene and in control. If a helipad is established it must be located at least 90 metres from the incident site, the holding area and the transport area.

(c) Organisation at Ambulance Headquarters

(i) There are two often conflicting demands on the controller and officer-in-charge of the ambulance service during an M.C.I. The first is to provide the necessary support for the successful conduct of the M.C.I. The second is to continue to provide for normal function of the service.

(ii) As the size of the incident grows, there will be significant strain placed on the communication system and on personnel and vehicle availability. The Ambulance Headquarters staff must balance the demands to provide the greatest coverage. As the communications load increases, the normal control room staff level may need to be raised. Each service should develop and test a set of procedures that will maximise the ability of its particular communications system to cope. The controller should channel as much communication activity as possible through Headquarters. Vehicle to hospital radio communication should be restricted to essential medical advice only and patient details passed to the receiving facility by the controller. Overall command of the service rests with the Officer-in-Charge, although there should be little

need for his intervention if procedures have been designed and tested prior to the incident.

(iii) Constant liaison between the Officer-in-Charge, the Controller and on-site command is essential. The controller should aim to provide minimum essential coverage levels to cope with cases not related to the M.C.I.

(iv) A call-in system is required by each service to facilitate rapid contact with staff in a logical sequence. It would need to consist of lists or diagrams which indicate to the controller how "far in time" from Headquarters, or other appropriate stations, officers live and any special skills, such as accreditation as a Field Commander, which they hold.

(d) The Plan

The Tasmanian Ambulance Service Multiple Casualty Incident Plan was produced in June 1983.

(e) Patient Triage

(i) Triage is the system of evaluation and categorisation of a patient's medical condition which allows treatment and evacuation of casualties to be undertaken with regard to the urgency of patient's problems. This categorisation is designed to give the maximum benefit to the maximum number of patients. Triage is not a strict set of rules, as the degree of benefit and, therefore, the order of priority depends on the prevailing circumstances. However, considerations do apply to all situations.

(ii) Multiple casualty incidents may limit the ability of the emergency medical system to provide maximum care to all patients. This is in contrast to the "normal" situation in which all casualties receive the best care available. The constraints placed on the level of care may be due not only to the number and rate of patients presenting, but also to environmental problems, the level of continuing care required and availability, remoteness of M.C.I. site, and impending recurrence of the incident.

(iii) Once the patient has been placed in a category, the process must not then ignore that patient. Changes may occur in the patient's condition which require a dynamic approach to triage. The assessment of priority must be ongoing and

the system flexible enough to allow the necessary changes.

(iv) In an incident where the immediate tactical situation is such that the available resources are insufficent, it is necessary to adopt a principle of negative triage. Here the order of priority is modified by the probability of survival and is not strictly based on the degree of injury.

(v) Patient triage must be based on objective, observable criteria which can be tested. The criteria must be validated (i.e. relate to an actual test group of patients), be able to be applied with minimal intervention and instrumentation, and have a high degree of inter-user portability. This is especially significant when patients will be triaged by persons with differing levels of expertise. It is important that the triage decisions of these people agree in the great majority of cases. Confusion and increased workload will result if this does not occur. The triage must also be able to be completed in the minimum time compatible with accurate results.

(vi) The M.C.I. plan attempts to satisfy these requirements with a set of patient categories and a triage algorithm; these are based on a tested triage score which correlates with probability of survival.

(vii) Five patient categories have been decided upon. The increased number of options allow for more accurate control of patient flow and better allocation of resources.

Category One - patients who must receive immediate treatment if they are to survive.

Category Two - patients whose condition, although serious, is such that treatment can be delayed up to one hour.

Category three - patients whose treatment may be delayed up to six hours.

Category four - patients who are non-injured within the context of the incident and are, therefore, no longer the responsibility of the ambulance service.

Category five - patients who are dead, or who have such overwhelming injuries that they will probably die, no matter what measures are undertaken.

(viii) The decision as to which category a patient is placed in is made by the application of a triage algorithm. This algorithm is based on a validated triage score which relates to probability of survival.

(ix) The 'will die' option relates to persons injured to an extent that the patient will probably die even with the application of a significant proportion of the available patient management resources. This option, that is the application of negative triage, is only invoked if the incident is of sufficient magnitude to compromise the ability of the medical response to provide maximum care to all patients.

(x) Patients who are classified as having no physical injury may have an overt or delayed psychological reaction. The definition of minor injury is a degree of injury not requiring transportation to hospital. The patient is dealt with by another agency and cared for by family, general practitioner, or lower level medical facility not involved as a receiving facility for the M.C.I.

(xi) No specific comment is indicated with respect to the categories one, two, and three.

5. Special Aspects as detailed in Plan are:

(a) Medical/Health Teams.
(b) Patient record cards.
(c) Casualty movement systems.
(d) Identification of personnel.
(e) National Registration and Inquiry System.
(f) Equipment supply.

APPENDIX 7
TO ANNEX D

SOUTH AUSTRALIA

RESPONSE TO A MASS CASUALTY SITUATION

SOUTH AUSTRALIA

1. The SA response to a mass casualty situation would be to use appropriate participating services of the State Disaster Plan. In particular, the Health and Medical Service Counter Disaster Plan would play an important part. The State Disaster Plan (Revised and published 1983) is supported by the State Disaster Act 1980 and the Regulations to the Act, 1982.

   The Health and Medical Service Counter Disaster Plan (revised August 1983) is at present being reprinted.

2. The organisational structure of the State Disaster Plan is designed for a metropolitan Adelaide disaster situation. There are 12 Functional Services participating in the plan.

   At regional level, plans are written or being written for 9 regions, based on the 9 non metropolitan police regional areas. The plans are modelled on the State Plan, and use the senior police officer of the region as the Divisional Coordinator.

3. Health & Medical Planning

   Planning, like the response, is at several levels, viz:

   (1) The H & M Counter Disaster Plan and State Control Centre level.

   (2) Individual major hospital Disaster Plans, and the St John Ambulance Service Civil Disaster Plan.

   (3) Some Community Hospitals have also planned for involvement in mass casualty management.

      (a) A Counter Disaster Planning Committee, with the State Controller, H & M Service, as chairman, and a hospital medical administrator as coordinator, functioned during the development of the C-D plan, the State Control Centre and associated communications systems. At present a smaller committee comprising three senior administrators (two medical, one non-medical) oversee the

revision of the Plan, the efficiency of communications systems, and annual exercise, on an irregular basis. A proposed formal appointment to a new counter disaster training/planning position will greatly increase the amount of work able to be done in this area.

(b) At major hospital level, various planning structures have existed, usually on an ad hoc basis, in order to revise and/or develop Disaster Plans. In the St John Ambulance Service, a Counter Disaster Officer is appointed on a full time basis.

(c) At Community Hospital Level, a model counter disaster plan written at State H & M level has been used by many hospital chief executive officers as a basis for their own plans, with assistance from local medical officers attached to the hospitals.

(d) Health and Medical planning at Regional level is incomplete, and awaits the impetus to be given by the proposed new counter disaster training/planning officer in the Central Office.

4. (a) Key Operational appointments

State Level

(i) One State Controller, H & M (usually a senior executive medical officer in the South Australian Health Commission).

(ii) Two duty officers carrying long range beepers 24 hours/day, activated from the St John. Their role is to bring the whole, or parts of, the H & M C-D plan into operation when appropriate.

(iii) Four group leaders to direct operations of key areas within the State Control Centre (see below).

Disaster Site Level

(i) One Field Medical Controller (usually an Assistant Medical Administrator from a teaching hospital).

(ii) He may appoint a Casualty Collection Post Controller.

(iii) Ambulance Controller.

(iv) Casualty Collecting Officer (ambulance).

(5) Transport Control Officer (ambulance)

4. (b) Systems

(i) Callout

On receipt of advice of a declared disaster, a disaster alert, or a major mass casualty incident, the St John Ambulance Service Communications Centre will activate the long range beepers carried by the Duty Officers. One or other of those officers will then decide on the appropriate level of response required from the Medical Services using a formalised Call-Out Action Plan for State Control Centre personnel. Various degrees of response are possible at hospital and State Control Centre Level. The St John Ambulance Service will make its own appropriate responses to the situation, including the operation of a Special Incidents Room in the Communications Centre.

(ii) Communications

Communications systems comprise Telecom telephone system, *the St John fixed/mobile VHF radio system; *a landline link from mobile St John radios to major hospitals:

*The Hospitals Emergency Radio Network in Adelaide (HERNIA) - a battery powered VHF radio network linking 8 major hospitals, the Red Cross Blood Bank, and the St John/ Health & Medical Service control centres.

*A mobile Field Control & Communications Unit. A large specially designed and equipped van, with 4 radio channels - 2 field-to-van, and 2 van-to-control Centre, for use at the disaster site.

*UHF hand held transceivers carried by hospital based Field Medical Teams for communication at the disaster site.

(iii) Headquarters

The State Control Centre (SCC) for the Health & Medical Service is located in the St John Ambulance headquarters building, and is one floor above the St John Communications Centre. A senior liaison officer from the St John Ambulance Service will be located with the State Controller in the SCC and a liaison officer from the H & M

Service will be located (if requested) at the Emergency Operations Centre (EOC) of the State Disaster Plan. The latter liaison officer has a direct telephone line and a dedicated radio link back to the SCC. Operational reporting will take place in the SCC, aided by situation reports from the EOC, the diaster site, major hospitals and the St John Communications Centre. Stand down and debriefing will take place as appropriate.

5. Special Aspects

(a) Composition of medical teams

The H & M Service plan provides for the use of Field Medical Teams, one or more as necessary from major hospitals. Nominal composition is 2 doctors and 4 nurses. Their role is to perform triage, emergency resuscitation, and if time permits, first aid. A Field Medical Teams Plan is a sub-plan to the H & M's plan.

(b) Special patient record cards have not been developed for field use, but the triage label has space for brief notes. Within hospitals, specially marked sets of records are usually availble for disaster victims.

(c) Casualty movement systems

(i) In the field - casualties to be brought to a Casualty Collecting Post, where some of the medical team personnel will re-triage and carry out resuscitation.

Walking wounded to be collected at a different site, and if necessary, dealt with by teams of G.P.'s associated with local community hospitals.

Triaged patients move from the Casualty Collection Point to an Ambulance Loading Point to await transport in order of priority.

(ii) Within hospitals, movement systems are designed as appropriate, and detailed in the hospital disaster plans.

(d) Identification

The State Disaster Plan allocated the colour

red-on-white to the Health and Medical Service, and that is in use, but a start has been made recently to change identifying signs to green-on-white, the international colour. Medical team personnel wear white helmets with DOCTOR or NURSE, armbands with MED are available, and MEDICAL CONTROLLER tabards are carried by all teams, to be used by the first doctor on site until a definitive Field Medical Controller arrives.

(e) National Registration

The NRIS system was ineffective during the Ash Wednesday Disaster in February 1983. Casualties and disaster victims were listed on a Department of Community Welfare computer network, with the assistance of Red Cross.

(f) Medical Equipment

Equipment for field medical teams has not been standardised, but a list of back-up supplies for the teams is listed in the Field Medical Teams Plan. The St. John Ambulance Service carries Counter Disaster supplies, mainly first aid haversacks, at a central location. These are listed in the FMT plan.

The Red Cross Blood Transfusion Service provides support. It's Counter Disaster Plan is a subplan to the H & M's plan, and the Service is connected to the HERNIA network.

Enclosures *

1. State Disaster Act 1980.
2. Regulations Under the State Disaster Act.
3. S.A. State Disaster Plan.
4. Counter Disaster Plan - Health and Medical Service.
5. Field Medical Teams Plan.
6. Riverside Community Hospital Disaster Plan.

* These enclosures are not attached but are available from the South Australian Health Commission.

APPENDIX 8
TO ANNEX D

GOVERNMENT OF W.A.

DISASTER POLICY

STATE DISASTER ORGANIZATION

STATE EMERGENCY SERVICE - (S.E.S)

A functional division of the Deputy Premier's Department.

Role

Is responsible for the planning, training, education, organization and co-ordination of the community to cope with disaster, to provide post-disaster assistance until such time as normal Government functions can be re-instated.

Reponsibilities

State-Counter Disaster Committee.

Provision and operation of State Emergency Operations Centre. Co-ordination of State resources during disaster action. Obtain and co-ordinate Commonwealth resources where and as when required.

The major departments and organizations represented on the State-Counter Disaster Committee and whose resources and counter disaster efforts are co-ordinated by the S.E.S. are below. Each of these organizations has a defined role in relation to the Counter-Disaster Committee.

Organizations concerned are :

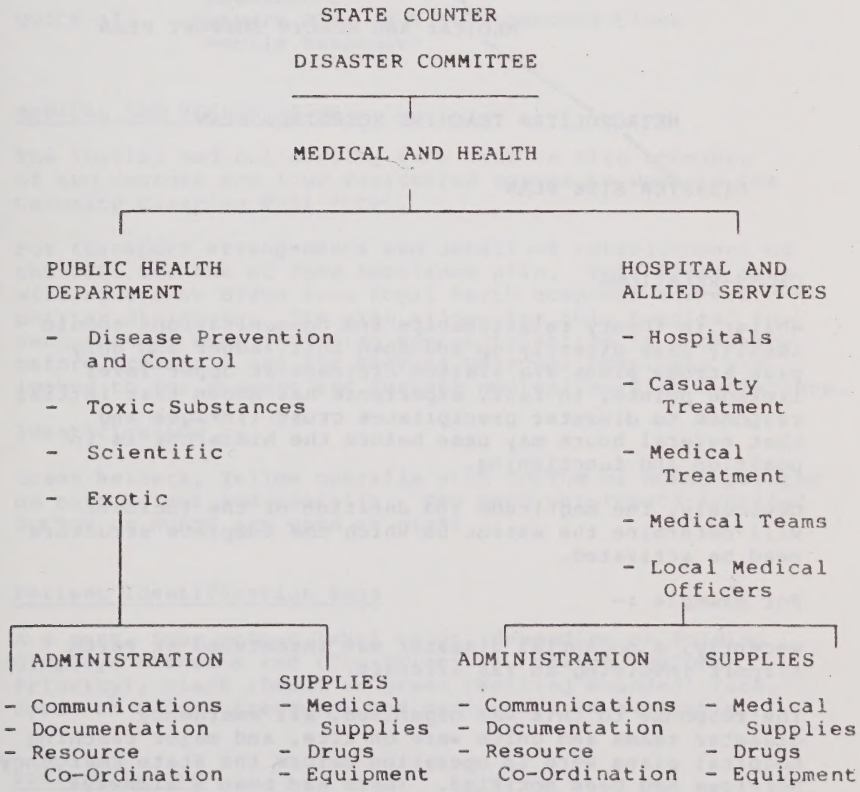
viz:
- W.A. Police
- W.A. Fire Brigade
- Department of Agriculture
- Bush Fires Board
- Department for Community Welfare
- State Energy Committee
- Department of Fisheries and Wildlife
- Forests Department
- Fremantle Port Authority
- Government Stores Department
- Education Department
- Marine and Harbours Department
- Department of Hospital and Allied Services
- State Housing Commission
- Department of Labour and Industry
- Lands and Surveys Department
- Main Roads Department
- Metropolitan Water Supply, Sewerage & Drainage Board
- Public Works Department

Premier's Department
Public Health Department
Transport Commission
Telecom
St John Ambulance Association
Royal Flying Doctor Service (W.A. Section)
Department of Treasury

The following table shows an example of a role statement for two of these departments.

viz:

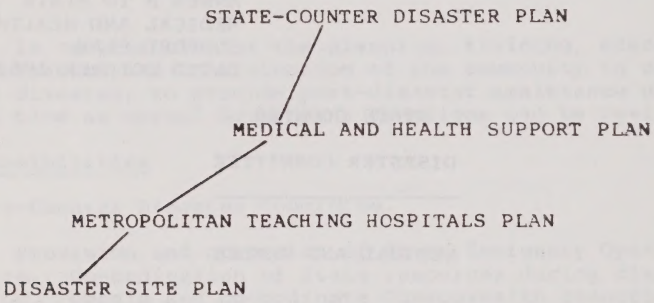
ANNEX B TO STATE
MEDICAL AND HEALTH.
SUPPORT PLAN
DATED OCTOBER 1983.



W.A. DISASTER PLANS

Following this structure, a hierarchy of plans has been developed, each organization having its own plan which subtends the State Plan and within the organization further plans subtend that organization's own plan.

viz:



CROSS-RELATIONS

Whilst in theory relationships and communications should ideally pass directly up and down this ladder and only pass across plans via liaison officers at upper level linkage points, in fact, experience has shown that initial response to disaster precipitates cross linkages and that several hours may pass before the hierarchy is in position and functioning.

Obviously, the magnitude and duration of the incident will determine the extent to which the complete structure need be activated.

For example :-

Recently, a potential disaster was threatened at Perth Airport involving an F28 aircraft.

The response to this was organised, all emergency disaster teams and units were on site, and major teaching hospital plans were in operation before the State Emergency Services had been notified. There had been a sideways communication from Airport to St John Ambulance and others to Hospital but the communications had not flowed upwards. Presumably, if the disaster had occurred and was beyond

the resources of the organisations concerned, the higher order plans would have been initiated.

PLANS

I table here a copy of the following :-

State General Counter-Disaster Plan
State Medical and Health Support Plan
Public Health Supplementary Plan
Teaching Hospitals Supplementary Plan
Model Hospital (Non Teaching) Supplementary Plan
Osborne Park Hospital Plan
St John Ambulance Plan
Red Cross Support Plan
A.T.E.N.D. Support Plan (S.E.S. Sponsored Damage Assessment)
QUICK-AID Support Plan (S.E.S. Sponsored Close Mobile Response)

MEDICAL AND HEALTH TEAMS

The initial medical/nursing team sent on site consists of two doctors and four registered nurses to work in the Casualty Clearing Post (CCP).

For transport arrangements and detail of establishment of the CCP, see the St John Ambulance plan. This first team will always be drawn from Royal Perth Hospital for metropolitan disasters. The plan allows for this hospital to send another team including specialty skills if necessary before Fremantle and Sir Charles Gairdner Hospitals are looked to for support and further medical/nursing assistance.

Identification :-

Green helmets, Yellow overalls with DOCTOR or NURSE painted on both helmet and overalls. Red DACO waistcoats labelled DOCTOR or NURSE are worn at night.

Patient Identification Tags

A 4 part, four colour label which, depending on folding displays either a red (Top Priority), orange (Second Priority), black (Dead) or green (Walking Wounded) face. Space to record treatment and medication is available.

Patient Record

No individual record card will be established at the site. This will occur on arrival at the hospital where a set of

clinical records with dummy record numbers and name is held at the Accident and Emergency Departments to enable admission to progress forthwith.

W.A. GEOGRAPHIC PECULIARITIES

The population dispersion of W.A. is perhaps peculiar with regard to the rest of the Commonwealth and this peculiarity has determined the particular provision of resources which places the State at some disadvantage in planning for mass casualties.

The population is approximately 1.34 million, of which just 950,000 are in Metropolitan Perth.

The remainder are widely dispersed with only 3 cities with over 20,000 population - Bunbury, Kalgoorlie and Geraldton.

The Northern quarter of the State - the Kimberley contains about 20,000 people and is 3 1/2-4 hours flying time from Perth, i.e. further than Perth-Adelaide.

The population centres are small in comparison to the regional centres of the Eastern States and thus do not have a large range of support facilities. For instance, there is no specialist orthopaedic surgeon resident in W.A. north of Perth.

This gives some indication of the extent of provision of services which is further indicated by the fact that whilst W.A.'s total acute hospital bed number 8,250 (Public and Private), only 460 of these are above the 26th parallel, i.e. the northern two thirds of the State. Thus, in these areas, 10 seriously injured people in one location would constitute a major disaster which would require resources beyond the capacity of the local area.

NORTHERN TERRITORY MEDICAL/HEALTH RESPONSE

MASS CASUALTY MANAGEMENT STUDY, NOVEMBER 1983

Preamble

The Northern Territory covers a large area and has a small scattered population. The northern coast is close to S E Asia; it has suffered cyclones and has been bombed. Central Australia is visited by increasing thousands of tourists annually - many of these in poorly equipped and inadequately driven coaches with little safety or first aid equipment and no communications. Thus the possibility of disaster involving mass casualties is ever present.

The five Northern Territory Hospitals (Darwin 300 beds; Alice Springs 180 beds; Tennant Creek 30 beds; Katherine 60 beds; Gove 40 beds) all have spare physical capacity. The two major base Hospitals (Darwin and Alice Springs) have 'disaster' wards which can be commissioned and used at short notice. Both of these hospitals have specialist surgical and anaesthetic units and intensive care facilities.

It is unlikely, however, that mass casualties will occur on the doorstep of a major hospital, and the dual problems of communication and transport are enormous.

Topics

1. Legislation - The NT Disasters Act 1982 was assented to on 15 December 1982 and replaced its predecessors, the first of which was the NT Disasters Ordinance 1976 (notably formulated well after Cyclone Tracy). The new Act embodies 3 developments, viz :

   (a) Clearer delineation of counter disaster control which is vested in -

      (i) The Territory Counter Disaster Controller

      (ii) Regional Counter Disaster Controllers; and

      (iii) Local Counter Disaster Controllers.

   (b) Statement of responsibility for co-ordination of support services required by Counter Disaster Controllers. This is vested in the Director of the NT Emergency Service and exercised by the preparation of Territory, Regional and local Counter Disaster Plans (which require the approval of the Counter Disaster Council). A Regional plan will be described later to exemplify the process.

(c) Statement of Counter Disaster Council membership and, more specifically, Counter Disaster Planning Committee membership at Regional and local levels.

2. (a) NT Counter Disaster Organisation is shown schematically on the first OHP slide (Figure 1).

(b) There are 6 Counter Disaster Regions in the Territory.

3. (a) The Regional Medical/Health group organisation which operates either as an autonomous unit or as part of the Regional response. That is, as the Group Leader, I can activate the Health Group plan or parts of it, as and when required (as happens frequently for 'run-of-the-mill' emergencies in remote localities).

(b) Each of the components of the Health Group has its own plan (eg, Hospital, St John Ambulance and so on), any one of which can operate independently depending upon needs. However, all of these dovetail into the overall plan.

Relevant Committees meet periodically to review and update these plans, and 'disaster exercises' are conducted to test logistics and to maintain staff preparedness. My particular group meets each 3 months for these purposes. We have our own HF and VHF networks to ensure adequate intragroup communications should normal channels fail.

4. (a) The 1982 Act spells out the key operational appointments at all levels and each Region has its set of options to choose from in terms of response at the disaster site. The choice depends upon consideration of a large variety of factors such as, number of casualties, distance, terrain, availability of airstrips, roads, rural health centres, etc etc. For example, in Regions 5 and 6, we have St John Ambulance, with trained first

aid and advanced life support personnel and a fleet of road ambulances (including one 4-wheel drive Hiline F100), Royal Flying Doctor Service (3 fixed wing, 2 stretcher aircraft), one Bell Longranger Helicopter, 5 District Medical Officers, Aerial Medical nurses and surgical teams from the base Hospital, which can be deployed in any combination. The communication net interconnects these elements.

(b) The RFDS frequencies (with appropriate crystals fitted to in excess of 150 HF transceivers scattered around Central Australia) are monitored 24 hours/day, so that anybody in a remote area who has access to such a radio can be speaking to the duty doctor within 90 seconds of activating the emergency encoder. The vagaries of HF radio can present problems.

Initial reports of a disaster (or impending disaster) can arrive via Police, RFDS, St John Ambulance or Hospital, and the Regional Controller, in consultation with his Committee, decides on the level of response. In the case of a medical emergency, I would seek assistance from the Regional Controller only if our own resources are inadequate.

All the formal stages (including stand-down) of activation of the Regional Counter Disaster Plan are declared by the Regional Controller.

(c) The EOC for the Medical Group is at the St John Ambulance Regional Centre which is designed for the purpose, is close to other health facilities and houses the communications centre.

I have a liaison officer whose responsibility, under the Regional Plan, is to attend the Regional Emergency Operations Centre and keep me up-to-date with the total counter disaster operation and pass on any information/requests from the Regional Controller.

5. (a) Composition of health/first aid/triage teams varies according to perceived need, but provision is made for first-on-scene to call in reinforcements as required. In view of distances, difficulties attached to treating patients in transit, and inability of most Hospitals to contend with large numbers of casualties at one time, our policy is to stabilise before transport where possible.

5. (b) At present, labelling of casualties follows St John pattern of red tags for urgent, white tags for non-urgent cases. Basic information - identification, next of kin, and details of injuries are noted at site and transported with casualties, and advance notice of relevant medical details is passed on to Hospital by radio.

Multicoloured labels are not thought to be easily distinguishable at night.

(c) Generally, St John Ambulance personnel are identified by uniform/overalls/white hard hat with badge and tabards are available for key personnel and doctors. A good case can be made for national standardisation - with the identity of at least the major groups of personnel easily distinguishable by the public.

(d) Responsibility for accessing NRIS rests with Red Cross under the Welfare Plan. Depending on the level of Counter Disaster response, registration information is available from Police, Red Cross and/or Hospital liaison. Once collected, the information may be transmitted to Darwin Red Cross and thence into the National grid. Opportunities exist for an interface between Alice Springs and Adelaide using RFDS equipment.

(e) Both major centres have "Blood Banks" and towns with minor Hospitals maintain O negative donor panels.

Summary

Under the terms of the NT Disasters Act (1982), there is a formal Counter Disaster organisation with control and co-ordination specified. Local counter disaster plans fit into Regional plans, which in turn form part of the Northern Territory Plan. Local and/or Regional responses will vary depending upon resources available, but in general the dimension of the disaster determines the nature and size of the response.

Conclusion

Finally, I should like to make a plea for stricter controls over tourist coach operations. The differential between the controls (in the form of driver training and fitness, mechanical maintenance and communications)

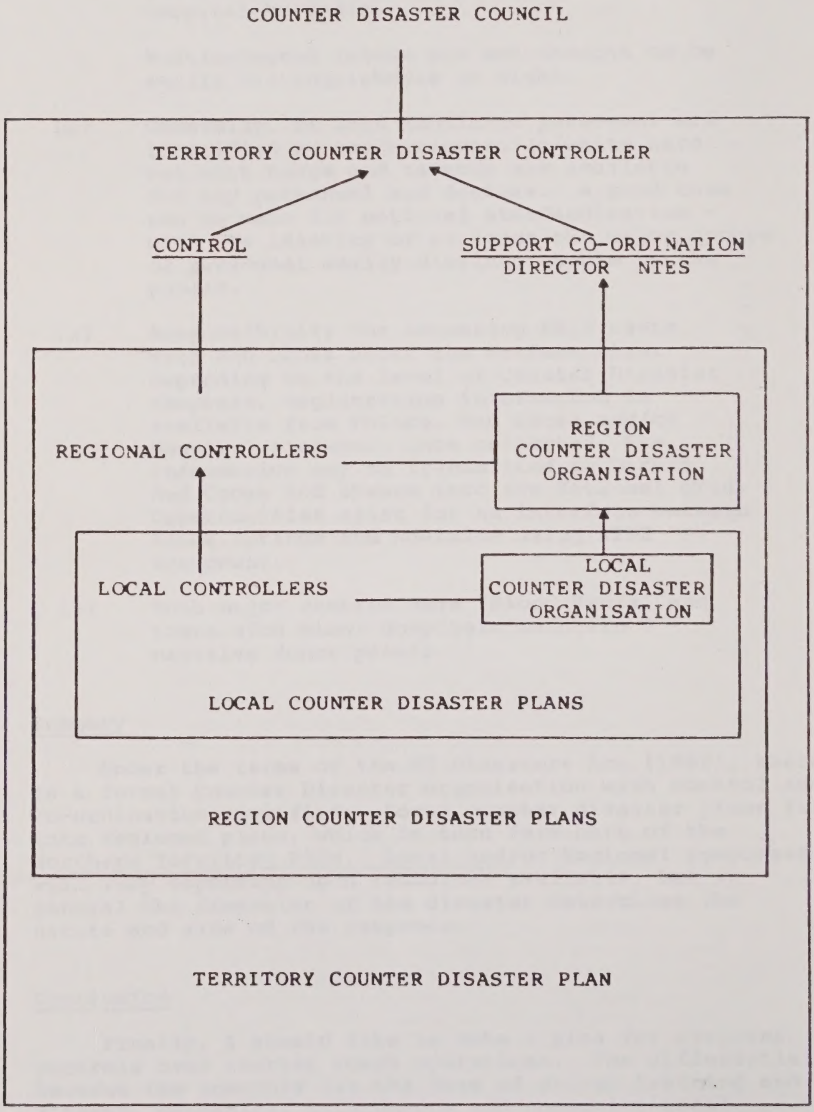
applied to an aeroplane carrying 40 passengers and a coach carrying the same number is wide indeed. The nightmare we live with in Central Australia is a double coach catastrophe, 500 km from Alice Springs, in the middle of a rainy Sunday night.

FIGURE 1

THE COUNTER DISASTER ORGANISATION

OF THE NORTHERN TERRITORY AND

THE LEVELS OF COUNTER DISASTER PLANNING



AUSTRALIAN CAPITAL TERRITORY

GUIDELINES FOR MEDICAL/HEALTH RESPONSE

MASS CASUALTY MANAGEMENT STUDY

1. AUTHORITY UNDER WHICH MEDICAL/HEALTH RESPONSE ORGANISED

In the Australian Capital Territory, the medical/health response to a mass casualty disaster is organised and co-ordinated by the Capital Territory Health Commission (CTHC).

The CTHC's authority to act in such situations flows from the Medical and Health Sub-Plan of the ACT Disaster Plan.

The ACT Disaster Plan is still in draft form and a copy of the most recent draft has been forwarded to the Australian Counter Disaster College by the Director, ACT Emergency Service. There is currently no Territory legislation supporting the Plan but it is the intention of the Department of Territories and Local Government to prepare such legislation.

The Medical and Health Sub-Plan is to be prepared shortly and will be based on the CTHC Counter Disaster Plan.

2. ORGANISATIONAL STRUCTURE TO PROVIDE RESPONSE

At Territory Level

The responsibility for control and overall co-ordination of counter-disaster operations in the ACT rests with the Territory Controller ie. the officer holding the appointment of Chief Superintendent, ACT General Policing Division, Australian Federal Police.

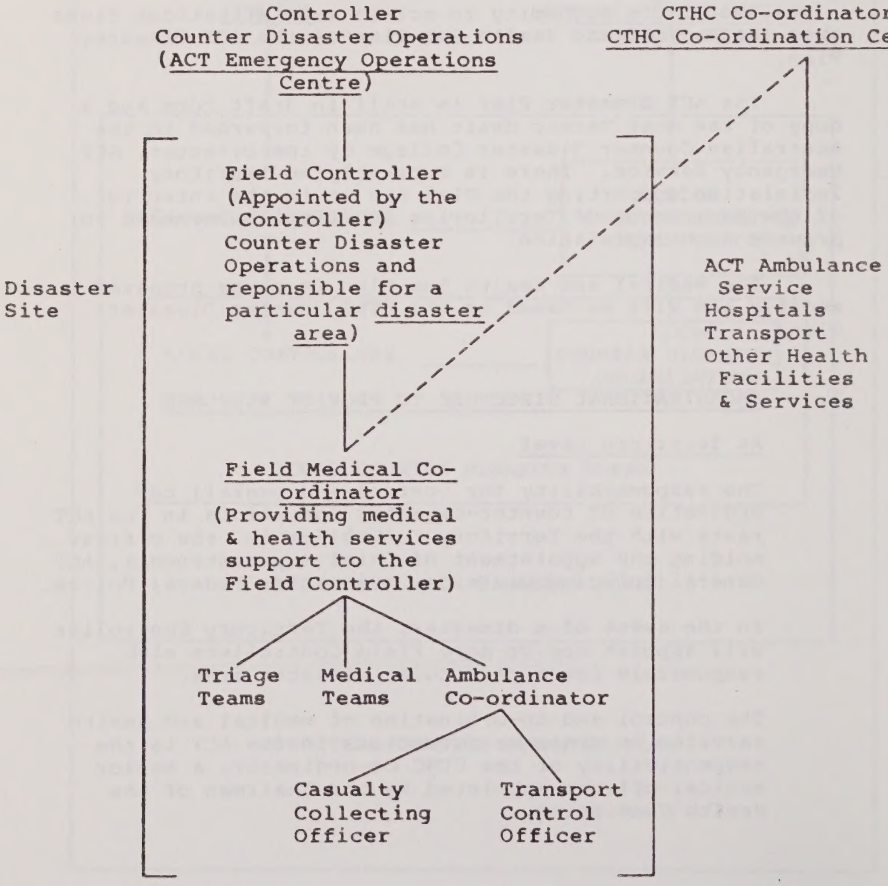
In the event of a disaster, the Territory Controller will appoint one or more Field Controllers each responsible for a particular disaster area.

The control and co-ordination of medical and health services in disaster situations in the ACT is the responsibility of the CTHC Co-ordinator, a senior medical officer appointed by the Chairman of the Health Commission.

The control and co-ordination of medical and health services in disaster situations in the ACT is the responsibility of the CTHC Co-ordinator, a senior medical officer appointed by the Chairman of the Health Commission.

In the event of a disaster, the CTHC co-ordinator will appoint one or more Field Medical Co-ordinators to assist the Police Field Controller(s) and to be responsible for the co-ordination of medical/ health services at a particular disaster site.

The relationship between the Territory Counter Disaster Operations and the CTHC Counter Disaster Resources is shown in the following diagram:



3. PLANNING STRUCTURES

The principal planning committees responsible for the development and maintenance of ACT medical/health response plans are:

(a) Medical and Health Counter Disaster Planning Committee

Responsibility: Preparation and maintenance of the Medical and Health Sub-Plan of the ACT Disaster Plan.

Composition: Representatives of -

- Capital Territory Health Commission
- Department of Defence
- ACT Emergency Service (Department of Territories and Local Government)
- Red Cross Society
- St. John Ambulance

This committee is to hold its first meeting shortly to commence preparation of the Sub-Plan and will thereafter meet as required.

(b) CTHC Counter Disaster Planning Committee

Responsibility: Preparation and maintenance of CTHC Counter Disaster Plan.

Composition:

- CTHC Co-ordinator
- Superintendent ACT Ambulance Service
- CTHC Medical Officer of Health (Public Health aspects)
- Representatives of the 3 ACT Public Hospitals

This committee convenes as required, normally 2 or 3 times per year. The committee undertakes a review of the CTHC Plan annually.

4. OPERATIONAL STRUCTURE TO IMPLEMENT MEDICAL/HEALTH PLAN

(a) Key Operational Appointments to Implement Medical/Health Plan

Upon confirmation that a disaster situation exists in the Territory, the CTHC Co-ordinator will proceed to the CTHC Co-ordination Centre and activate the CTHC Counter Disaster Plan.

Key Commission personnel and facilities will be informed that the Plan has been activated and that the CTHC Co-ordinator is in control. They will also be informed of the nature and known extent of the disaster and will be directed to carry out the roles specified in their respective Action Cards.

The following key appointments will be made as one of the first actions of the CTHC Co-ordinator :

(i) At Territory Level

- A CTHC Liaison officer who, it is expected, will be requested by the Territory Controller to station himself at the ACT Emergency Operations Centre.

(ii) At Disaster Site Level

- Field Medical Co-ordinator(s)

(b) Operational Systems

The ACT Ambulance Service Control Centre will, most probably, receive the first notification within the Capital Territory Health Commission that a disaster has occurred. In the event of an air disaster, the Royal Canberra Hospital, via a dedicated line from Canberra Airport will receive notification at the same time as the ACT Ambulance Service.

In accordance with the CTHC Counter Disaster Plan, the Ambulance Station Control Officer will dispatch ambulances as indicated and also the Ambulance Service Disaster Equipment Vehicle. He will notify the CTHC Co-ordinator, the hospitals and also the police if he believes this to be necessary. The Commission's immediate response subsequent to this alert will include :

(i) the despatch of triage and medical teams and the Field Medical Co-ordinator from Woden Valley Hospital;

(ii) the activation of the CTHC Co-ordination Centre;

(iii) advice to key personnel not associated with activities at the disaster site;

(iv) the preparation by Royal Canberra Hospital to receive the first batch of casualties from the disaster site; and

(v) the preparation by Calvary Hospital and the Commission's Health Centres to receive minor casualties from the disaster site and non-disaster emergencies.

The continued response by Commission resources will be determined and directed by the CTHC Co-ordinator in the light of progress reports received at the Co-ordinator and requests from the ACT Emergency Operations Centre.

When it is determined that central co-ordination of CTHC resources is no longer required the CTHC Co-ordination Centre will notify all participating services of its intention to stand down.

Debriefing will be arranged by the CTHC Co-ordinator as soon as practicable after the disaster to evaluate the Commission's response.

(c) CTHC Co-ordination Centre

This Centre is located in the Health Commission Building, Canberra City. It will come into operation when either the Commission's Counter Disaster Plan or the ACT Disaster Plan is fully activated.

The Centre is a sub-station on the ACT Disaster Communications Network and is linked by radio to the following organisations external to the Health Commission:

- ACT Emergency Operations Centre
- Australian Federal Police (Net Control Station)
- ACT Fire Brigade
- ACT Emergency Service (Dept Terr and Local Govt)
- Conservation and Agriculture Section (Dept Terr and Local Govt)
- Welfare Branch (Dept Terr and Local Govt)
- Natural Disasters Organisation (Dept of Defence)

- ACT Regional Office

- Department of Housing and Construction.

The CTHC Co-ordination Centre is also the control station for the Health Commission's internal counter disaster radio network. Sub-stations on this net are:

- Royal Canberra Hospital

- Woden Valley Hospital

- Calvary Hospital

- ACT Ambulance Service

- Health Services Supply Centre (including Transport Operational Depot, Central Linen Service, Central Sterilising Service and Maintenance).

- Combat vehicles

- Portable transceivers within a range of 30 kms of the Co-ordination Centre including the portables used by the Field Medical Co-ordinator and the Ambulance Co-ordinator.

The CTHC Co-ordination Centre is operated by executive staff of the Commission employed within the Health Commission Building.

Key personnel likely to be in attendance (as required) at the CTHC Co-ordination Centre are:

- CTHC Co-ordinator

- Executive Officer, Services

- Medical Officer of Health

- Manager, Community Health Division

- Director Mental Health Branch

- Manager, Health Services Supply Centre

- Public Relations Officer.

In the event of the CTHC Co-ordination Centre being out of action, the resources of the Commission can be directed and co-ordinated from communication centres at other Commission facilities.

Both the ACT Disaster Net and the Commission's internal radio net are tested weekly.

5. SPECIAL ASPECTS

(a) Composition of Health Teams

(i) Medical Teams

Medical Teams comprise a doctor and two nursing sisters drawn initially from the staff of Woden Valley Hospital.

(ii) Triage Teams

Triage Teams comprise a doctor drawn initially from the staff of Woden Valley Hospital together with a clerk from that facility or a capable by-stander at the disaster site.

(b) Patient Record Cards

The Capital Territory Health Commission utilises Victim Identification Colour Coded Cards similar to those used by the NSW Department of Health. These are:-

Green	-	for non-urgent medical attention
Red	-	for urgent medical attention
White (with black edging)	-	for fatalities.

(c) Casualty Movement Systems and Procedures

For disasters in the ACT, disaster victims will be given initial treatment by medical officers at the Casualty Collection Post adjacent to the disaster site and then transported either to a hospital or to a lesser treatment centre in accordance with directions written by the medical officer on the Victim Identification Card. The Transport Control Officer will keep a record of all evacuees from the disaster site and of their destinations.

(d) Identification of Commission Personnel

Medical and para-medical workers at the disaster site wear white reflective vests and hard hats with the designation of the wearer identified

in large red lettering front and rear.

The Commission understands that the international colour for health workers engaged in counter disaster operations has recently been changed from white and red to green and white. The implications of this change are at present being considered by the Commission.

(e) Registration of Casualties

In the ACT, the registration of casualties arising from a disaster will be undertaken by the Australian Red Cross Society at the request of the Australian Federal Police using Disaster Registration Cards supplied by the Police.

The evacuees from the disaster site will be registered as they leave the area if there is time. Casualties who are not registered at the site will be registered subsequently at a hospital or other treatment centre.

Cards of registered persons will be passed to the ACT Registration and Enquiry Centre located at the Department of Industry and Commerce Computer Centre, Barton, ACT.

(f) Medical Supplies and Specialised Groups

The medical equipment and supplies carried by the field medical officer, nurses and ambulance officers to disaster sites are listed respectively at Annexures B, C and D.* In addition, the ACT Ambulance Service Disaster Equipment Vehicle which will be despatched to the disaster site as part of the Commission's initial response is equipped with the following :

IV Infusion Equipment
Volume Expanders
Tourniquets and Bandages
Antiseptic Wound Washes
Stretchers
Stretcher Stands
Splints.

* Please note these lists are not attached but are available from the Capital Territory Health Commission.

Specialised groups and units providing support in a disaster situation will include :-

Red Cross Blood Transfusion Service
St. John Ambulance
CTHC Hospital Pharmacies
CTHC Central Sterilising Department
CTHC Central Linen Service
CTHC Transport Section (Buses and Trucks).

ANNEX E

AUSTRALIAN COUNTER DISASTER COLLEGE

MASS CASUALTY MANAGEMENT STUDY

7 - 10 NOVEMBER 1983

DISCUSSION EXERCISES

Aim of the Discussion Exercises

1. The aim of the discussion exercises was to invite consideration in depth of problems central to the management of mass casualty situations - overall control and co-ordination, the mobilisation of medical and other relevant resources, on-site handling and treatment, the handling of casualties between the disaster site and appropriate medical facilities, and the organisation of hospital admissions.

2. Two scenarios were set - the first involved an incident in a relatively remote rural area, and the second involved a much larger incident in a metropolitan area. For the purposes of these exercises, and bearing in mind the differences in legislation and organisation which pertain within the Australian federal system, participants were asked to assume that the operational roles and responsibilities of the various authorities likely to be involved would be those typical of the authorities in the scenario setting. Again for the purposes of the exercises, it was asked that participants should assume that no specific inter-organisational counter-disaster plans which would bear directly on each scenario had been developed in the specific locations concerned.

Discussion Exercise 1 - The Remote Locality

3. The scenario for this discussion exercise depicted a collision at dusk, on the outskirts of Wilcannia (a town on the Barrier Highway in south-western New South Wales, some 206 km east of Broken Hill), between a passenger coach and a fully-laden petrol tanker. The resulting fire involved other vehicles, and the immediate casualty situation was 3 dead (including a Japanese tourist, a member of a tour party travelling on the bus), 22 severely injured (including 6 serious burns cases), and 7 minor injuries.

4. All five syndicates were asked to address the following general question (stating such assumptions as they believed necessary to their response):

'Identify the specific jurisdictional and operational problems you see being faced by:

a. medical and health authorities;

4. (Continued)

b. other responding emergency services, and

c. the community (including local government),

in the immediate aftermath of this incident, and suggest the general priority in which those problems should be tackled. What conflicts are likely to arise in meeting these priorities and what machinery, in general terms, do you see necessary for resolving such possible conflicts at local and higher levels?'

5. In addition, syndicates were asked to address specific problems, as follows :

a. Syndicate 1. Discuss the overall medical control and co-ordination aspects relating to the handling of the incident as a whole, with particular reference to :

(1) the desired structure for medical control and co-ordination;

(2) relationships with other emergency services, and

(3) communications.

b. Syndicate 2. Discuss the mobilisation and deployment of medical and other resources which would be necessary to cope with such a situation, at each level of possible involvement (giving particular consideration to transportation requirements).

c. Syndicate 3. Discuss the on-site handling and treatment of the casualties, indicating possible problems and solutions.

d. Syndicate 4. Discuss the handling of the casualties between the incident site and their temporary or final treatment destinations.

e. Syndicate 5. Discuss the problems which could occur in this situation in relation to the organisation of hospital admissions, at each level of possible involvement.

6. Syndicate solutions are summarised at Appendix 1 to this Annex.

Discussion Exercise 2 - The Urban Problem

7. The scenario for this exercise depicted a massive explosion on a large chemical tanker discharging at Maribyrnong Berth in the Port of Melbourne, with an area of radius 1 kilometre being severely affected. Port facilities and on-shore storages were damaged, with initial estimates of approximately 150 dead and upwards of 300 injured. A semi-refrigerated liquified gas carrier moored nearby was threatened. To the immediate problems created by the situation, however, were added a major hazard resulting from the movement of a large smoke cloud, contaminated with escaped toxic materials, moving slowly to the north-west of the site of the incident. In the path of this cloud was a substantial residential population, a major hospital and other medical facilities, schools, and a number of industrial and local government installations.

8. All five syndicates were asked to address the same general and specific problems as set for Discussion Exercise 1 (see paragraphs 4 and 5 above).

9. Syndicate solutions are summarised at Appendix 2 to this Annex.

Appendices : A. Discussion Exercise 1 - Summary of Syndicate Presentations

B. Discussion Exercise 2 - Summary of Syndicate Presentations.

APPENDIX 1 TO
ANNEX E

DISCUSSION EXERCISE 1 - THE REMOTE LOCALITY

SUMMARY OF SYNDICATE PRESENTATIONS

The General Question

1. In this question, syndicates were asked to address jurisdictional and operational problems facing all responding authorities, the priority in which these problems should be tackled, and how and at what level possible conflict should be resolved. Appropriate assumptions were stated and agreed.

2. Syndicate 1 suggested that medical and health authorities would face problems resulting from the lack of inclusion of the Royal Flying Doctor Service (a major response agency in this context) in disaster plans, the time difference between the two States (NSW and SA) primarily involved, problems resulting from the inadequacy of immediately-available medical resources and time-and-space difficulties in acquiring additional resources, and the fact that the possible need for requesting Commonwealth resources (and even some degree of co-ordination) might not be recognised early; these could result in both jurisdictional and operational problems. Similar operational problems were recognised for other responding agencies, and the limited community resources available (particularly in respect of care of the uninjured, awaiting on-movement) were noted. The priorities were seen as the activation of the required medical support, the care of the uninjured (both immediate and longer-term, noting also the presence of foreign tourists) and the development of interstate arrangements as required. The machinery needed to be based on an appropriate planning base, the testing of such plans and the development of effective liaison, and debriefing following both such test exercises and the operation itself.

3. Remaining syndicates generally identified a similar range of problems and priorities. Syndicate 2 put forward the possible need for retrieval teams and the problems of interstate transfer of casualties; they also examined likely communications problems, suggesting that convergence on Telecom facilities would require heavy reliance on radio for control and co-ordination. Syndicate 3 gave particular attention to the problems of information demand and flow, and to the requirements of site safety (with the need for additional resources which both would create). Syndicate 4 examined command and control problems, and identified the need for co-ordination through police and medical structures to ensure the management of information and resources. Syndicate 5 considered operational problems, with particular reference to staff and resources, recognising that the isolation of the locality would result in critical problems in these areas even though, from a local viewpoint, the medical problems would have had to be dealt with within the first twenty-four hours.

Medical Control and Co-ordination

4. Having reviewed the location and possible response-times of relevant agencies and resources, Syndicate 1 examined the roles and communications relationships of the initial responding agencies (police, fire and local organisations) in order to assist in determining the medical response system which would relate effectively to the general command and control structure.

5. On-site medical co-ordination was seen as being undertaken by a nurse (or, if available, a member of the Royal Flying Doctor Service) in the first instance, working back through the regional medical co-ordination centre at Dubbo. This latter centre would be primarily concerned with information and with logistic support of the on-site effort; the State medical co-ordination centre in Sydney would need to be involved, both for possible support and for liaison interstate and with the Commonwealth as required. Interstate liaison would be required, as there would be some movement of casualties into South Australia.

6. Co-ordination would be required between all responding agencies to ensure that information and resources could be made available in support of the medical effort; this extended to such aspects as police providing transport for medical personnel and support, and local government/SES authorities providing airport and site lighting, etc. The syndicate suggested that the media should be excluded from the site, but this suggestion was not supported by others.

The Mobilisation and Deployment of Resources

7. Syndicate 2 saw the Royal Flying Doctor Service (RFDS) playing a key role in mobilising and deploying resources, and also recognised the need for the deployment of medical/retrieval teams and resources from both Broken Hill and South Australia. A command post would be needed at site to co-ordinate the mobilisation and deployment of resources, and to manage triage, first aid/resuscitation, care of the uninjured, and transport of both injured and uninjured.

8. Detailed consideration was given to the resources which responding agencies and local authorities might be able to make available in support of the medical effort. It was recognised that transportation of the injured would present substantial problems, from site to hospital to airport to final treatment destination. In general discussion, the view was expressed that as far as possible (and within the limitations of transport capability) patients with special treatment requirements (e.g., burns patients) should be moved as rapidly as possible directly to their final treatment destination.

On-Site Handling and Treatment

9. Having reviewed possible local resource capabilities, Syndicate 3 established the following general on-site priorities:

* Making safe from the risk of explosion, fire development

* Conducting triage to determine life-threatening conditions (ABC - airway, breathing, circulation)

* Arranging appropriate outside assistance through police and ambulance/medical sources (including support from Broken Hill)

* Moving patients.

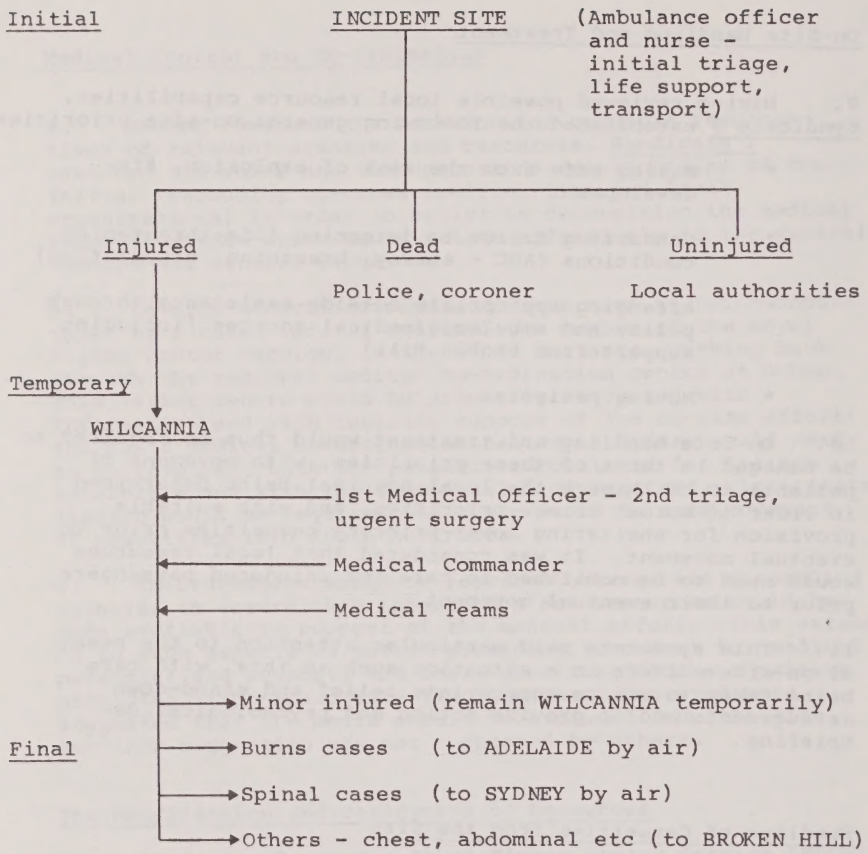
10. On-site handling and treatment would thus be required to be managed in terms of these priorities, with movement of patients to or through the local hospital being determined in order of normal triage priorities, and with suitable provision for sheltering lower-priority casualties prior to eventual movement. It was considered that local resources would need to be mobilised to care for uninjured passengers prior to their eventual movement.

11. This syndicate paid particular attention to the needs of on-site workers in a situation such as this, with care being taken to ensure appropriate relief and stand-down arrangements and to provide action and psychological de-briefing.

Handling of Casualties from the Site

12. Syndicate 4 established a need to evacuate casualties from the site in family groups as far as possible, recognising the problems in the potential widespread separation of injured and uninjured members of the same family; this would, of course, have potentially significant implications for transport planning which would add to existing problems.

13. The following was seen as the desirable system of handling casualties from the site:



Organisation of Hospital Admissions

14. Syndicate 5 recognised the problems which were likely to result at the local hospital level given limited resources (including personnel) and such factors as on-site delays. At regional level (Broken Hill and Dubbo) and higher (Adelaide or Sydney), these problems were likely to be reduced, but much depended on information being provided rapidly to enable activation of plans and staff. The presence of overseas visitors among the casualties would need special recognition. It also needed to be recognised that severe weather conditions at site could result in hospital admissions problems.

15. The syndicate emphasised the need for reviewing and amending plans at all levels following an operational experience such as this.

APPENDIX 2 TO
ANNEX E

DISCUSSION EXERCISE 2 - THE URBAN PROBLEM

SUMMARY OF SYNDICATE PRESENTATIONS

The General Question

1. In this question, syndicates were asked to address jurisdictional and operational problems facing all responding authorities, the priority in which these problems should be tackled, and how and at what level possible conflict should be resolved. Appropriate assumptions were asked to be made.

2. Syndicate 1 proposed a series of assumptions as a basis for their consideration, the key assumptions relating to availability of warning, resources and co-ordination staff. It was also assumed that Western General Hospital could be evacuated to Essendon, and that Eastern Suburbs hospitals could accept incident victims. Having argued these assumptions, the syndicate felt that there should be no specific jurisdictional problems, but that there would be a series of major operational problems resulting from :

* the magnitude of the evacuation required
* the time constraint (even though the critical stage of the incident should pass after some two hours)
* traffic chaos
* language and cultural barriers
* the 'mobility' (i.e. progressive movement) of the disaster itself, and
* community response problems.

3. The syndicate emphasised the overall problems resulting from the above, including the need to activate a large number of plans (including the inevitable competition for resources which would occur) and the lack of firm intelligence. They saw a need for firm control and co-ordination by the police in order to ensure an effective response.

4. Syndicate 2 proposed the priorities which should be applied, giving primacy to the protection and preservation of life. From this, they saw operational priorities commencing with early assumption of high-level control by the appropriate authorities, the establishment of a cordon around the threatened area, and evacuation of those in immediate danger. While agreeing in general with the operational problems as seen by Syndicate 1, they saw the possibility of jurisdictional problems in such areas as the establishment of early medical

co-ordination, the priority of evacuation of hospitals and other aspects of medical control, in addition to potential jurisdictional problems in other emergency services areas brought about simply by the magnitude and complexity of the event itself.

5. Syndicate 3 also saw the possibility of jurisdictional problems and conflict between the port authorities and other emergency service authorities. Syndicate 4 saw the effects of the event lasting longer than most earlier syndicates had considered, and examined the resulting problems in terms of zones and phases of action and evacuation. Syndicate 5 extended the possible areas of jurisdictional problems to take in relations between local government/ municipal and State authorities.

Medical Control and Co-ordination

6. Syndicate 1 saw the need for the deployment of a number of area medical co-ordinators - one to co-ordinate activities in the impact area, others to co-ordinate sectors on the 'periphery' of the toxic cloud, and one to co-ordinate the major problems which would result from the need to evacuate Western General Hospital (and perhaps other medical facilities).

7. It was recognised that there would be a pressing need for a proper flow of operational information (including the passage of relevant information to the public via the media) and that this would need to be assisted by the establishment of Emergency Service Liaison Officers between the Health Commission and the central co-ordination authorities.

The Mobilisation and Deployment of Resources

8. The resource management problem was addressed in detail by Syndicate 2, which recognised the significance of the problem. The syndicate developed a resource matrix which identified resource-providers against resource-services, indicating in each case whether the resource-provider was providing each resource in either a primary or assistance role. The matrix clearly demonstrated the need for co-ordination to ensure the effective mobilisation and deployment of resources, and served to emphasise the importance of the police role in providing control and co-ordination services and facilities.

On-Site Handling and Treatment

9. Surveying the problems which would result from the situation as depicted, Syndicate 3 identified the following as major considerations:

* informal rescue and removal of casualties would be occurring;

* informal and unregulated triage of casualties would be occurring;

* there would be difficulty in finding and identifying casualties;

* the number of casualties would remain unknown for a time;

* the safety of workers could not be guaranteed;

* there would be major problems in the control and management of health resources;

* interpreters would be in demand, and

* there would be problems in providing relief, support and suitable debriefing facilities.

10. The syndicate put forward the need for a graduated and controlled response in such a situation, with clearly-identified control points (field, area and central medical co-ordination officers and relevant staffs) and designated ambulance loading points and medical team assembly centres being progressively established and publicised, so that the inevitably uncontrolled initial response should be brought progressively under control.

Handling of Casualties from the Site

11. Syndicate 4 assumed that an event such as this would result in some 50,000 survivors from the affected areas, of whom some 500 patients needing major treatment would require admission to hospital.

12. The syndicate saw the need to establish staging centres through which all survivors would need to be passed, manned largely by local general practitioners. It could be aniticipated that such centres might identify some 20,000 patients requiring treatment, of whom some 500 (see above) would require major treatment, with the remainder needing treatment at suitable hospitals or treatment sites. Some 30,000 would be handed over to the relevant welfare system for treatment as evacuees.

13. The syndicate also drew attention to the problems which would surround the mass fatalities likely to occur as a result of the occurrence of an event such as this; local resources are likely to be able to conduct disaster victim identification procedures and autopsies for some 500 victims, but coping with up to 1000 victims would be likely to require the deployment of interstate and Commonwealth resources. Given response

times and availability of specialists, a number of over 1000 dead could result in a requirement for mass burial without either DVI (disaster victim identification) or autopsy, and this might have significant legal consequences.

Organisation of Hospital Admissions

14. Syndicate 5 identified significant problems in this event in determining the appropriate distribution of casualties amongst treatment facilities, in co-ordinating casualty transport to these facilities, and in providing a structure which would ensure orderly flow of patients through assembly, triage and dispatch points. The syndicate also recognised that provision needed to be made for 'triggering' the activation of hospital disaster plans in such an eventuality - while the receipt of 'x' casualties might be sufficient to 'trigger' the activation of a disaster plan at any hospital, this would be ineffective in preparing the hospital to cope with large numbers of casualties if new patients should arrive in numbers soon after the first admissions.

15. The syndicate recognised the significant problem of public information in relation to casualties and hospital admissions which would arise in such circumstances, and saw the need for the establishment of public information centres with appropriate medical and hospital input.

ANNEX F

MASS CASUALTY MANAGEMENT STUDY

7 - 10 NOVEMBER 1983

OTHER PAPERS AND PRESENTATIONS

The following papers and presentations are attached as Appendices.

Appendix 1

Paper - "An Introduction to Disaster Medicine" by Dr Marcel R Dubouloz, Vice- President of the International Society on Disaster Medicine, republished from International Civil Defence Bulletin No 338, August 1983.

Appendix 2

Opening Address to Study, by Director, Australian Counter Disaster College.

Appendix 3

The Royal Flying Doctor Service, by Dr L Jongbloed.

Appendix 4

Australian Chemical and Pharmaceutical Capabilities in Support of Mass Casualty Management, by Dr C R Proctor, ICI (Australia) Operations.

Appendix 5

Closing Address to Study, by Director, Australian Counter Disaster College.

APPENDIX 1
TO ANNEX F

AUSTRALIAN COUNTER DISASTER COLLEGE

MASS CASUALTY MANAGEMENT STUDY

7 - 10 NOVEMBER 1983

The attached is a lecture given by Dr Dubouloz at the 1st National Civil Protection Week on 20 May 1983 in Tunis.

Dr Marcel Dubouloz is Vice President of the International Society on Disaster Medicine 26 rue du Stand 1204 Geneva.

This lecture was published in the International Civil Defence Bulletin No 338 August 1983 registered in the ICDO Library under No. 01PC/13500.

AN INTRODUCTION TO DISASTER MEDICINE

by Dr. Marcel R. Dubouloz

Should Disaster Medicine be taught? Resolutely and unreservedly I would say - yes - although its teaching is difficult as it is mainly a question of simplification of medical assistance, simplification of therapeutic means to be used, simplification of methods of treatment, co-operation with other sectors, abandoning individualism for collective deeds, etc. Now, these do not involve innate reflexes in most physicians but they should be acquired.

For example, a war wound has particular characteristics which should be known in order to find the adequate treatment, otherwise the harmful side effects of the medical assistance will be as important or even more than the consequences of the wound itself (infection, gangrene, finally amputation, etc.).

As far as Disaster Medicine is concerned, in my opinion one should resist the temptation to a certain trend which is prevailing now in everyday medicine, especially in hospitals, whereby the most sophisticated means must be used both for diagnosis and therapy. To be efficient in disaster situations everything should be directed towards one goal avoiding being trapped by the concept that this medical branch can be assimilated to intensive care medicine as it is practised in hospitals, for example. The confusion is, unfortunately, much too frequent, especially in Western University Clinics.

Disaster Medicine is, in fact, a mass and multiple trauma medicine. It is rather difficult to convince health specialists that efficiency can be achieved with little means, provided, of course, that the material drugs and techniques are adapted to circumstances, i.e. that all these elements have been investigated, selected according to the cases for which they must be kept ready for use.

Everyday medical practice cannot be switched over to emergency disaster medicine stage by stage as if there were only a difference of degrees in the stages; one must leap over a deep ditch. Therefore, it is imperative to be able to rely on trained personnel who can make decisions according to circumstances and events. I do not believe that this can be improvised. In the medical field, as in many other fields, efficiency calls for a number of conditioned reflexes and these are obtained essentially by practice, hence the need for a double training, theoretical and practical, of the nursing and paramedical personnel.

Everyday medicine is most of the time costly, not necessarily in terms of finances, but because it is time-consuming, drug-consuming and needs a large paramedical personnel, technical means, etc. In times of disaster it is essential to be as efficient as possible at the lowest cost possible and these two requirements are neither contradictory nor exclusive.

I therefore believe it essential to achieve a unity of doctrine at the health personnel level. At the Civil Protection Organization in the Canton of Geneva, for example, we use as a unique reference book in terms of surgery and first-aid, the Manual on War Surgery of the Swiss Army which gives indications not only on surgical treatments but also on major medical problems, and we always refer to it. The Unity of doctrine must be taught, it is a prerequisite to any kind of medical co-ordination; co-ordination is invaluable to ensure efficient relief actions. In my view, it is important to make sure that this unity of doctrine is maintained by regular exercises and continued teaching.

Let us review briefly a few of the essential elements to be considered in a disaster. From the strictly medical point of view, one important and obvious element is the number of patients or injured (generally great, often several hundreds, most of them multiple trauma victims).

Most of the time the means of communications are disrupted, making the routing of relief difficult, as well as transportation and evacuation. Often a sudden and dramatic increase in the needs of medicines and material (bandages especially) occurs in a situation which has been already precarious before the disaster - this is generally the case in man-made disasters (war). It is not unusual to face a population exodus from the disaster site resulting in a regrouping of the populations in areas where the sanitary infrastructure is inadequate: lack of potable water, insufficient latrines, etc. Risks of epidemics, even mass medical problems, are very important factors, and sometimes the disasters develop in two stages : the first, which is essentially surgical and a second medical stage in its broad concept. Consideration should also be given to problems such as food supply, crops, animals (requiring veterinary competence) and those related to security or identification of victims. This short reminder of some of the criteria of a disaster is sufficient to convince, if need be, that preparedness is absolutely indispensable and that a disaster situation is not only a medical matter but it requires co-ordination of efforts at high level between the various sectors, or even various ministries.

It seems that Disaster Medicine cannot be limited as such in a course curriculum, for example, within an exclusively academic framework, but the teaching should be integrated into a global programme - a well structured plan - and it is therefore not superfluous for physicians to

know how the neighbouring sectors operate, i.e. :

- what is the capacity of transportation means, namely how many patients could be evacuated ?
- what is the capacity of reserve operating rooms, namely what kind of triage should be made?
- how many stocks of medicine are available?
- what are the hygiene problems, etc.

A general co-ordination is necessary to integrate the medical activities into the global relief plan.

In the Geneva Civil Protection, we organize every year practical exercises for the physicians on the very site where they will be assigned to intervene in case of a disaster. In this way, they know the material available, the premises, the auxiliary personnel, etc. I shall only make a slight reference to the problem of triage, as this will be discussed later on by my surgeon colleague Dr. Frei. Triage does not consist in making an inventory of the injuries or the injured, but in dividing the victims into different categories so that those who require immediate treatment are cared for while avoiding a bottleneck in the rear. I believe a good idea is to work on a - medical team - basis, generally made of one physician, one or two nurses and two relief workers.

The time devoted to each patient will of course depend on the number of triage teams available, the estimated number of injured and exterior circumstances but, it should quite obviously be kept to a minimum and, in most cases, in a great emergency the physician should aim at reducing the triage time to three to four minutes per patient. The teams should be perfectly aware of the accommodation capacities of various first-aid stations where they will start treating their patients. Co-ordination and outstanding knowledge of logistics aspects can be acquired only through integrated exercises with various sectors. Intervention should be as precise as possible to become a truly conditioned reflex in order to avoid unnecessary actions, waste of time, personnel, material, etc.

When I spoke about the unity of doctrine as a capital element of relief, the importance of standardization should also be underlined, concerning the material available, drugs or even techniques to be applied.

I believe it possible to care for 95% of the victims of a disaster with a very limited list of essential medicines. Standardization has many advantages. It avoids waste in giving up costly and brand-new medicines which are

often not better than their essential predecessors. The use of well-known medicines may in fact avoid dosage problems. The more one gets accustomed to work with simple medicines the better they are known, the less there are risks of errors to be feared. This is an important factor as in disaster situations there is likely to be shifts of medical teams, patients will be sometimes displaced or transferred and it is seldom the case that the same persons will administer and continue the treatment.

Clearly, in disaster situations considerable discipline will be required from all the health personnel and therapic orders should be as simple as possible. It is therefore quite normal to prepare a standardized medical case-history, and this document should be kept with the patient wherever he goes. On the disaster site during the triage period a special form will be filled out with basic indications as to the urgency of transport, the emergency aid administered probable diagnosis in order to avoid a second person sending the patient for a second triage instead of immediately seeing the development of his state since the last diagnosis. This would save time in the re-evaluation of the situation and especially increase the effectiveness of the second stage of care. A printed tab attached to the patient seems to be the only valid solution.

Going back to medical and other materials, I wish to make a few general remarks regarding conditioning and the necessary stocks in this field.

The soundest solution would be to have pre-established medical sets with an assembly line ready to prepare various sets according to requirements.

Each set should be a well defined entity containing the material necessary for : small surgery, pediatrics, injections and perfusions, all kinds of bandages, etc. These sets should be packed in cartons and not weigh more than 20 kg to facilitate their transport (ideally the set of medical material should be carried on a man's back, or even on a bicycle). These cartons must be water-proof and strengthened by metal straps. Each carton will have a sticker showing a list of its contents, and in the cartons there should be a short leaflet with indications and dosages of the various materials for safe and speedy identification.

The advantage of this system is that with a few stocks of sets permanently available it is possible to initiate immediate medical relief action whereby ensuring speed and availability. Then, during the few hours following the outbreak of the disasters, and thanks to the assembly line, it is possible to prepare rapidly various kinds of sets according to needs (rather small surgery than medicine, more bandages, etc.). This system allows for an adaption of relief to the needs. It requires little personnel and, according to our experience, it is considerably efficient.

The various articles can be bought in a relatively great quantity - consequently at low cost if one avoids the use of specialities and purchases basic medical products. It is, then, easy to distribute these basic products into various bottles, generally in plastic bottles. When the time arrives, the cartons are filled with the medical sets according to the check-list. This system is efficient and economical.

In case certain products are not used (because of non-consumption due to the absence of a disaster situation) they will be returned to the general storage room of the hospitals, taking into account the date-limit, so that they can be used in time to avoid waste and also an excessive amount of stocks. Dangerous drugs or useless samples which, in case of a disaster, are brought regularly by amateurs and which can often have harmful effects on the health of the victims will thus be eliminated.

With these medical sets the quantity but also the variety can be determined before sending them. It means that one can perfectly adapt relief to the real needs but also to the personnel available and their qualifications. I believe, in fact, that a monolithic relief must be set aside and that relief should be adapted to the competence of the health personnel available. The kind of medicines to be sent will depend on the co-operation of the persons on the site : a physician or a simple first-aid worker for example. This will eliminate inaccurate instructions for administering drugs, overdoses, and useless secondary effects.

It would be adviseable to use a colour code in order to identify the emergency drugs immediately or those which need special qualifications for their use.

In concluding I would like to repeat a few key words specific to Disaster Medicine : it has its own identity, it requires training, it should be integrated into a global co-ordination system and needs qualified personnel trained in using simple and standardized techniques and material. The medical sets and materials must have many qualities, essentially they must be transportable, packed in solid cartons, easily identifiable : use only the necessary essential and well-known medicines and they should be dispatched according to the competence of the health personnel available.

DIRECTOR'S OPENING ADDRESS

I welcome you all to this important gathering : in particular I offer a special welcome to our observer from New Zealand.

This is not the first occasion on which the Commonwealth Government, through this College, has attempted to stimulate positive action to improve Australia's ability to manage mass casualty situations. In March 1975 a Medical Services' Seminar was held here and then, in May 1976, a Medical Disaster Seminar was held to study the requirements and capabilities of major health services in time of disaster. Those seminars were conducted effectively and, in my opinion, satisfied their aims. But, it seems that scant attention was paid to the recommendations derived at those meetings after the delegates dispersed from this College.

This experience of lack of post-Seminar action prompted NDO to seek the support of the Commonwealth Department of Health, which had primary responsibility for the problem area, before conducting studies, symposia or seminars. It is because the primary responsibility for the resolution of most problems which emerge rests with a Department other than the Department of Defence that, as I mentioned to you during my introduction to the College, most of the seminars and studies which we now conduct are co-sponsored.

In June 1979, the Departments of Health and Defence (NDO) co-sponsored a symposium on the Management of Mass Burn Casualties in Australia, to acquaint participants of the current arrangements for the management of mass burn casualties in Australia and to consider the problems of handling and treating mass burn casualties in both metropolitan and remote areas, at the disaster scene and between the disaster scene and appropriate medical facilities.

Although the conclusions reached by that Symposium - which were published in this Report - were promulgated widely, the situation relating to post-symposium action does not seem to have improved markedly in the intervening four years. Certainly this is the view of two eminent burn specialists, whose views were quoted in "The Australian" newspaper in July 1982. They were Dr Peter Haertsch, a visiting plastic surgeon at the Repatriation Hospital at Concord, and Australia's representative on the International Society for Burn Injuries, Dr Murray Clarke. They are quoted as saying that New South Wales could not even cope with routine cases of burns victims, let alone a major disaster such as a plane crash. They indicated that the burns unit at Concord was the only functioning adult centre in the State and had only three beds. They said that if there was to be a major plane crash victims would have to be "dumped" at every hospital in Sydney - and probably not more than fifty people could be adequately dealt with.

This news item prompted me to seek, from the Secretary of the ANZ Burn Association, an up-dated situation report, so that we could evaluate the benefits derived from our Mass Burn Casualty Management Symposium. He co-operated, by asking the question in the Association's Journal, "What has your State done about Mass Burn Casualty Management?" The result of his question produced rather disappointing results. Some States responded, but others did not. Over all, it appears to me that no State or Territory of the Commonwealth is well enough prepared to cope with a mass burn casualty emergency - and that the situation doesn't seem to have improved much since our 1979 seminar on the management of mass burn casualties.

This may prompt you to ask "Why, then, are you persevering by conducting this particular Study?" The simple answer is that we believe there is a need for Australia to be better prepared to cope with emergencies or disasters which will result in mass casualties, all of whom will require early medical care and treatment.

This Study, which again is co-sponsored by the Department of Defence and the Department of Health, is designed specifically to acquaint you with the current arrangements for dealing with mass casualty-producing emergencies in Australia, so that you may then identify deficiencies in those arrangements and means of overcoming them - regardless of whether the emergencies occurred in a metropolitan or a remote area of Australia. The Study brings together a broad representation of people who hold responsibility at senior level in Departments, or authorities and organisations throughout Australia. It is through all of you, whose understanding and sustained effort are needed if we are to feel confident of our ability to manage effectively in the event of any mass casualty-producing emergency or disaster in Australia, that improvement in the existing arrangements is likely to be effected.

I want this Seminar to encourage you to ensure that your own organisation's responsibilities, plans and preparations for managing a mass casualty-producing emergency are reviewed and modified, with a view to improving their effectiveness in implementation. And, when the Seminar is over, I want you to urge others to do the same.

Without attempting to pre-judge the outcome, I suggest that your discussions are likely to raise more qustions than they will answer. Indeed, without even embarking on the Seminar, I could raise a number of questions which I doubt you could answer with either authority or confidence. For instance:

Who is the decision maker in a mass casualty situation? Is it a physician, a general practitioner, a paramedic or a first aider?

How do we prepare general and other medical practitioners to make the hard decisions which mass casualty situations will demand?

Are they prepared to act on the basis of uniform care for everyone or on the basis of what is best for the most?

How do we overcome the conflict between individual care and care for the masses?

Who will receive priority in a mass casualty producing disaster?

What guidance is needed to ensure reasonable standard protocols affecting disaster casualties?

Who will decide what medical care will give the best return for the effort expended?

How are we going to overcome the ethnic and language problems?

How effective are our warning and communication systems?

How are we going to ensure that the hospitals and medical services are alerted in a timely manner?

Do we need to train auxiliaries and volunteers to support medical and other emergency organisations?

How are we going to manage the convergence problem?

Is there in existence an Australian plan to mobilise medical manpower?

Is it necessary to provide special training for medical disaster co-ordinators?

That list could be expanded considerably, but suffice it to say that members of the medical profession and para-medical organisations, in particular, need to be prepared to assist in times of disaster. However, effective mass casualty management requires co-operation between all organisations who are involved. It also needs co-ordination and the exercise of a myriad of other talents, not the least of which is an ability to make the best use of what resources are at hand. There can be no doubt that disaster respondents must practise the art of improvisation.

When we talk of mass casualties, we need to "think big", not so much in numerical terms as in terms of the magnitude of the problem which will confront us. We need to envision well in advance of the event, the sorts of problems and the scene which is likely to confront us, so that we will react and respond instinctively and effectively.

I think it is safe to say that too few members of any profession have given sufficient thought to the role that their profession and they, as individuals, might have to play in

time of disaster. I wonder how many doctors have contemplated the need to prepare themselves now to play their part in a co-ordinated medical response in the event of a mass casualty-producing disaster, or the sorts of individual tasks they may be called upon to undertake.

How effective are the hospital disaster plans which have been prepared? Do they relate to anyone outside the hospital, or are they merely what might be termed standard operating procedures?

What I have said has dwelt mainly on the professional, medical aspects of a mass casualty-producing disaster. I have stressed the fact that effective mass casualty management will require co-operation, understanding and effective co-ordination of available resources - resources of men and materiel. It involves the co-ordination of all the resources of all the emergency services - of the police, the fire services, ambulance, hospital, medical, transportation, communication, welfare and other resources. This is no mean task. Obviously, training and role modelling will be required if the task is to be accomplished effectively. However, unless consideration is given to the problems in advance of them arising, and steps are taken to resolve the problems or to reduce their dimensions, the responsibility which comes in the wake of a disaster will be much less effective than it ought to be - and that is why we invited you to gather for this Seminar.

I am pleased that you have chosen to attend it and look forward to your contribution and to the results of your deliberations over the next few days.

MASS CASUALTY MANAGEMENT STUDY

THE ROYAL FLYING DOCTOR SERVICE OF AUSTRALIA

DR L JONGBLOED

Historically it was this gentleman The Reverend John Flynn who, while working in the Australian Inland Mission, saw first-hand the isolation and the tragic effects of that isolation on people living in the outback. He saw a definite need for an effective means of getting medical care to these people. It was his idea of using aircraft for this purpose. In May 1928 the Aerial Medical Service began operations at Cloncurry in the west of Queensland. The first doctor was a Dr Benson and the pilot, Arthur Affleck, and the De Havilland aircraft which was borrowed from an obscure Queensland aerial service i.e. Quantas. It was this gentleman, Alf Traeger, however, who was responsible for the development of a cheap, reliable and technically simple radio system for use by non-technically trained people. Radio added a third dimension to what proves today to be an effective triad, aviation, medicine and radio.

In the early 1930s the Inland Mission gave up control of the Aerial Medical Service and it became known as the Flying Doctor Service. It is now headed by a federal council and directly controlled by seven autonomous State sections. As you can see from these figures there is a definite demand for our services in the outback in an area which would contain less than ten per cent of Australia's population. You can also see by this map that there're enough places for us to go. As I mentioned, there are seven sections and fourteen actual bases. The seven sections run autonomously and each have their own way of doing things. The Western Australian section, for example, has bases at Port Hedland, Carnarvon and Meekatharra and operates twelve aircraft of various descriptions, employs fourteen flight sisters and one doctor, and the operation obviously is mainly of a retrieval nature. The eastern goldfields, which is part of the Western Australian section, operating out of Kalgoorlie, has three doctors and three flight sisters and three aeroplanes, and this provides medical services to a number of the outlying mining towns.

The Victorian Section's field of operations is up in the Kimberley region of Western Australia, operating out of Derby and Wyndham. Queensland has three bases at Cairns, Mt Isa and Charleville: Cairns and Mt Isa, I believe, have two doctors each and Charleville has one doctor. The aircraft are mainly Kingairs and Queenairs, I think. The Central section incorporates Port Augusta and Alice Springs, the South Australian section, has two doctors, two sisters and two aeroplanes and they operate a sort of clinic service as well as an emergency evacuation service. Alice Springs uses local government medical officers on a roster

basis. I apologise to Tasmania, which is missing off the map, but they also have a Flying Doctor Service and theirs is mainly a charter operation - they charter aircraft for retrieval and medical clinics.

The New South Wales section, to which I belong, has three full-time doctors, one sister and also employs two para-medic-cum-sisters and two sisters-cum-para-medics up in the Moomba gas field up in the north-east of South Australia.

Various aircraft have been used by the Flying Doctor Service over the years and each section operates different sort of aircraft. In general the basic requirement for an aircraft in the Flying Doctor Service would be one that has enough room for a pilot, a doctor and/or a sister and a stretcher, as well as being able to carry some medical equipment. Short take-off and landing characteristics are a necessary advantage, whereas speed and pressurisation are thought to be a secondary consideration. But on a three-hour flight from Moomba to Adelaide on a hot summer's day, with a seriously injured patient, I could put up a good argument for a high-speed pressurised aircraft. The New South Wales section oeprates two Nomad aircraft which have an excellent load-carrying capacity - they can carry ten seated passengers, with one fixed stretcher. At a pinch you could carry four stretcher patients, but I think, practically, two stretchers is about the maximum, particularly if you want to work on the patients. These aircraft have excellent short field and take-off performance. They are fully instrument-fitted for flying in all weather and have radar and recently have been fitted with an Omega navigation system. However, when the Nomad's doing this - that is flying - it's at a disadvantage, it's slow, it has a cruising speed of about 150 knots which can turn out to be a ground speed of less than 100 in a good headwind.

The following slides should show the type of terrain we operate in and out of. This is the usual sort of improved bush strip at most homesteads and small towns. We can at a pinch if necessary operate on rougher strips and on occasion have been asked to land on the highway - to assist at motor vehicle accidents.

Radio is probably the most consistent feature of the RFOS network all bases operating HF single side band bases. They fulfil both a social need as well as a medical need. Radio medical sessions are held daily and there are a variety of ailments which can be prescribed for from a medical chest at the homestead. All the items in the chest are numbered and this streamlines the prescribing and obviates mistakes. Medicals can be done at home in a homestead, in the air, as well as by telephone. A twenty-four hour emergency alarm is fitted to all the radios out in the bush and this allows him to contact the doctor in an

emergency at any time, even when the bases are closed for the night. The radios in the bush are also used for station-to-station "galah" sessions, which is chatter over the back fence. There is also a radio telegram service - all stations in the bush are recognised telegraph outposts and in recent years a radio telephone service has been provided. The bases usually operate two or three frequencies as well as a number of School-of-the-Air frequencies.

Although it's not very clear, this is a map of the area that the Broken Hill Base covers. We do regular clinic runs each day to either small bush towns, such as, Wilcannia, Tibooburra and Ivanhoe, one-horse towns on the Darling River, like Tilpa and Louth and also homestead runs - this is a typical sort of run that we do - these are all fitted into a day and there is only one clinic a month that we spend overnight away from Broken Hill.

Medicine probably is practised the same as anywhere else but without the comforts of an office surgery or the hospital corridor. We also try to provide regular specialist visits - opthalmology, ear, nose and throat, pediatrics, as well as providing a dental service.

While the Flying Doctor Service was busily evacuating patients, treating small medical problems in the outback, dealing with small, unexpected disasters and unexpected arrivals, practising a peculiar sort of bush medicine, something was happening in its own backyard. Some quiet achievers up in the Cooper Basin were discovering gas and oil in large quantities and wanting to sell that gas and oil. Coming from isolated terrain like this, they set about building a gas and oil extraction plant, two gas pipelines - one to Sydney and one to Adelaide - and a liquids pipeline to South Australia. In the rapid building phase they brought in about 2,000 men into the area and to bring in these men to this area they had the second busiest airport in South Australia. A number of Fokker Friendships land there each day, as well as small business jets and medium sized commuter aircraft and small aircraft and helicopters. Some days it's hard to get a park at the airport. Obviously there's a real potential for a major disaster up in an area like this and the added problem of the distances involved from help. I think it's mainly because of Moomba being there that we've started to look at our disaster policy and what we'd do if we had to evacuate mass casualties and we found that - we didn't know. As it stands at the moment a disaster for us could probably mean ten or more seriously injured patients - that would mean that the New South Wales section, the Port Augusta section and possibly the Charleville section

wouldn't be able to cope. I believe that the South Australian Emergency Service doesn't have any actual disaster plan for Moomba as yet and unfortunately because of our situation, where a New South Wales-based organisation is operating in three States, it's been a bit difficult to actually formulate a plan. What we're trying to develop is a protocol on who to call on and what personnel to get to assist in the event of a disaster. At the moment the feeling is that we might short-circuit all the State disaster plan and go directly to the Air Force at Richmond and ask them to send a Hercules up and we'd fly off in the opposite direction.

The aircraft have a limited range of medical equipment - it's a sort of flying casualty section, enough equipment that you couldn't do without until you got to hospital, but in a disaster situation that sort of equipment would be exhausted rather quickly.

Fortunately Moomba isn't the scenario for tomorrow, but I suppose I had better talk to you about Broken Hill itself. Broken Hill is a town of about 27,000 people. It has a base hospital which has two general surgeons, one with an orthopaedic interest, one paeditrician and one physician plus a number of resident medical staff. It's quite a large hospital, but anything serious in the way of injuries gets evacuated by us or by the aerial ambulance at Port Augusta to Adelaide. I hope this might stimulate some discussion tomorrow and help us to formulate a plan for coping with mass casualties and it's not only the expanding industrial situation in isolated outback regions but, as mentioned previously, the tourist bus situationl as well as the Indian Pacific Railways which also runs through our area.

APPENDIX 4
TO ANNEX F

THE PHARMACEUTICAL INDUSTRY AND NATIONAL EMERGENCIES

by

Dr C R Proctor, ICI (Australia) Operations

The purpose of this short talk is to consider the structure of the pharmaceutical industry in Australia and to appraise its readiness or otherwise to respond to national and state emergencies. I propose to deal briefly with pharmaceutical production, with the organisation of the industry, the availability of drugs and their lines of distribution and, finally, the access to drug information at national and state levels.

The Structure of the Pharmaceutical Industry

R. & D.

The international pharmaceutical industry is dominated by a number of large multi-national organisations operating on a worldwide basis with headquarters mainly in the U.S.A., U.K., West Germany, France, Japan, Switzerland and Sweden. Some of these organisations rely largely on pharmaceutical products for their existence but others, such as I.C.I. have a much broader chemical base and the production of pharmaceuticals may represent only a small fraction of their total productivity.

All the major companies are heavily committed to research and development but there is a minimum size for the establishment of such a facility and for this reason most multi-national companies tend to concentrate these activities in centralised laboratories. Consequently, there is only limited R. and D. in Australia and this is mainly concerned with adapting products to local conditions, aiding compliance with government standards and conducting clinical trials. Some companies provide financial and other forms of assistance to local research institutions. At the present time the only basic research into ethical pharmaceutical products is being carried out by C.S.L.; the former Roche Research Institute of Marine Pharmacology which was established in Sydney in 1974 has now closed down. This localisation of research and development to Europe, Japan and the U.S.A. seems unlikely to change in the foreseeable future.

Manufacture

Pharmaceutical production can be divided into two stages:

(a) the manufacture of active ingredients, and

(b) the formulation of the active and other ingredients into dosage forms and the packaging of the end products.

Economies of scale occur mainly in the production of active ingredients and the production and marketing strategies of the multi-national companies tend to revolve around the centralised manufacture of raw materials with decentralised formulation and packaging using active ingredients imported from affiliated companies or from independent sources. Although there is some local manufacture of raw materials this is not very significant; the emphasis seems to be on importation and decentralisation.

Organisation in Australia

There are approximately 150 companies in Australia manufacturing or importing pharmaceutical products and 106 of these supply items for the Pharmaceutical Benefit Scheme. Most of the companies are subsidiaries of multi-national organisations but there are several relatively small Australian owned manufacturers. Twenty eight of the firms supply about 90% of the PBS market; in fact, six firms together supply almost 40% of the market. (Some companies are owned by wholesalers or chemist co-operatives, eg Sigma Pty Ltd).

The Commonwealth Government owns the Commonwealth Serum Laboratories and this is primarily concerned with research into and production of a wide range of biological products including vaccines, sera, antitoxins, antivenoms, hormones, antibiotics and human blood fractions. In the private sector most of the manufacturing is done from imported raw materials. There is a concentration of production facilities in Melbourne and Sydney although some companies (such as Commonwealth Industrial Gases) manufacture in other capital cities as well. Manufacture also takes place in certain provincial centres such as Warrnambool and Port Fairy in Victoria. Again, the necessity to import raw materials comes through in any consideration of local production. The Australian pharmaceutical industry doesn't have the resources to either stockpile vast quantities of raw materials or to alter its entire structure to allow for the manufacture of a wide range of raw materials in the event of Australia's dislocation from its regular sources of supply. On the other hand, the A.P.M.A. is very conscious of the problems which could arise in this country in the event of a war in Europe or Asia and the matter is under serious consideration. The establishment of raw material manufacture de novo and full-scale production of many drugs would present enormous problems, not the least of which would be access to jealously-

guarded manufacturing data. The time taken to reach full production would obviously depend on the products concerned and the facilities available but I would see months rather than weeks involved - even years. It is a subject which merits further discussion and consideration of priorities and actions to be taken.

The New Zealand PMA, whose industry relies almost exclusively on the import of raw materials has recently reported to the New Zealand Government on the impossibility of its planning for the aftermath of a nuclear war in Europe!

The Lines of Distributions

Prescription pharmaceuticals are distributed to the public, other than hospital patients, through retail pharmacies which in turn buy mainly from pharmaceutical wholesalers; there is also some direct dealing between manufacturers and retailers (about 10% of the total). The wholesalers supply a highly efficient distribution network throughout Australia and this network could provide the basis for a relief plan suitable to deal with localised natural disasters, eg Cyclone Tracy. The National Pharmaceutical Distributors Association (NPDA) has fifteen member firms which are all Australia owned and represent most of the pharmaceutical service wholesalers in this country. Some also engage in the manufacture and marketing of pharmaceuticals, eg Sigma and Fauldings. (Six of the wholesalers supply most of the stock for distribution and carry a full range of prescription pharmaceuticals). Eight of the members of NDPA operate from a single warehouse and seven operate an average of 5-6 outlets, mostly outside capital cities. The Commonwealth Department of Health has available information allowing for rapid (after hours) contact of all pharmaceutical companies and wholesalers in connection with the "Uniform Recall procedure for Therapeutic Goods". However, I notice that some of the pharmaceutical companies and one of the major wholesalers in Victoria have no after hours numbers listed in the telephone directory. Presumably, the various State Emergency Services would have access to these.

Perhaps consideration should be given to further decentralisation of warehousing outlets although it would be a national disaster of the magnitude of a nuclear war which would be likely to seriously affect the current lines of distribution.

The Availability of Drugs

Stockholding

Warehousing: As a general aim members of the NPDA hold items which have reasonable sales to pharmacy, plus a very full range of items which are regarded as being essential to the operation of pharmacy, including items which have extremely low sales but are of high medicinal importance. The members report holding in excess of 6,000 pharmaceutical items (including various packs and dosage forms). Approximately 10% of items account for 80% of sales.

Members report total stockholding corresponding to approximately 7 weeks' sales but many items are subject to fluctuations in demand arising from seasonal and other causes; moreover, branch establishments have a significant effect on stock levels.

Manufacturers: Here again, the position is subject to flux but, on average, a manufacturer would hold six weeks stock of which two weeks sales supply would be in the finished and packaged form; the remainder would be in the form of raw materials and intermediate products.

Together, the manufacturer and wholesaler would have some four months normal sales requirement in reserve and probably another two months in transit from overseas. In the event of acute and excessive demand, in the case of certain drugs, the necessity to import could become pressing.

It may be of interest to consider stockholding in certain areas :-

Commonwealth Serum Laboratories: The Minister for Health can determine what reserve stocks the C.S.L. should hold over and above those normally carried for commercial purposes. (Normally, about three months reserve stock is held and whilst there is some secondary warehousing in the States most of this stock is held centrally in Melbourne). This includes all preparations and these can be in the form of raw materials, intermediates or finished products. For the sake of shelf life and to avoid "dumping" C.S.L. tends to hold raw materials or intermediates where possible and to rotate the finished products with the commercial lines.

The Minister normally decides the reserve stock position on an annual basis. The Government is charged

with the cost of holding the drug but not for the drugs themselves.

There is a policy on the stockholding of serum preparations; that is, there is decentralisation to the Red Cross Blood Transfusion Service in each State and each State keeps a reserve stock pile.

Commonwealth Industrial Gases: Air, oxygen and nitrous oxide are produced in every major capital city and a total of 10 days sales stock is held in storage at separate sites. Back-up supplies would be available from interstate within 10 hours.

Analgesics: There are two producers of codeine phosphate in Australia, Glaxo Laboratories Pty Ltd and Axtell (a subsidiary of Johnson & Johnson).

The poppies are grown in Tasmania only and in the case of Glaxo they are processed in a plant at Port Fairy. There is capacity for producing up to 60 tons of concentrated poppy straw powder, which yields 75 tons of codeine phosphate. The annual Australian usage is 4.3 - 4.5 tons and whilst a certain quantity is kept in reserve the major share is exported overseas. (The U.S.A. uses only about 50 tons a year).

The United Nations require a certain amount of the codeine phosphate to be kept in reserve and I was assured that this was more than enough to cover emergencies. India apparently stockpiles some 3,000 tons and both India and Turkey hold more than sufficient to cope with a world disaster.

Anaesthetics: Although there would appear to be no problem with the supply of potent analgesics in Australia in the event of a national emergency, this does not apply to anaesthetic agents. Mention has already been made of the relatively limited reserve of medical nitrous oxide which would be available and which is manufactured locally. However, of the volatile anaesthetics only Ethyl Chloride and Di-ethyl Ether are manufactured locally and the halogenated anaesthetics are all imported. (Ether is manufactured by Hoechst Laboratories at Laverton in Victoria). "Open ether" anaesthesia is now historical and few, if any, recent medical graduates would have ever administered such an anaesthetic so that although supplies may be available in the event of an emergency there could well be problems in administration. Again, all intravenous agents are imported as are all the muscle relaxants. Problems could also arise with local anaesthetics; Procaine and Lignocaine solutions are formulated locally but the active ingredients

are imported from Europe.

Antiseptics: The "Australian Chemicals Guide" shows that quaternary ammonium compounds are produced by several different companies in this country, including ICI, and that hydrogen peroxide is manufactured in Australia. However, ICI imports the chlorhexidine for its antiseptic range and Reckitts and Colman import the active ingredient of 'Dettol'. ICI has the manufacturing capacity to produce chlorhexidine locally but imports the active ingredient for economic reasons.

Antibiotics: - Penicillin is manufactured by Abbotts Laboratories in Sydney and C.S.L. in Melbourne. The two plants can manufacture in quantity and the Government has taken action to protect this facility. The broad spectrum penicillins come from overseas. Abbotts have fermentation facilities capable of producing Erythromycin. On the other hand, the majority of the broad spectrum antibiotics, such as the tetracyclines are still imported into Australia.

Some local companies have a very large manufacturing capacity such as Sigma Pharmaceuticals, and their subsidiary Fawns & McAllen Pty. Ltd., whose products range through antacids and analgesics to antibiotics, eye drops and steroid creams.

The Melbourne company, David Bull, produces a very large range of injectable products, and companies such as these could probably cope with a national emergency if raw materials were made available; they are involved purely in secondary manufacture.

Drug Information Services

National Drug Information Centre: This is based at the Canberra Hospital and is open from 8.00 a.m. to 8.00 p.m. five days a week. It has a computerised data base (NDIS) and access to the Medline System in the U.S.A. The National Library buys tapes from the Medline system and these are stored in the Canberra computer. The National Drug Information Centre is about to produce a prescribing compendium for routine use by medical practitioners.

State Drug Information Centres: These are based in the various capital cities and are on line to the National Drug Information Centre. The Centre at the Royal Melbourne Hospital is staffed by experts from 8.45 a.m. to 5.30 p.m. five days a week. In addition, the staff have access to the Centre when the Hospital Pharmacy is open, ie from 8.30 a.m. to 9.00 p.m. Monday to Friday, 8.45 a.m. to 5.30 p.m. on Saturdays and 8.45 a.m. to 1.00 p.m. on Sundays. Although experts on drug information are not available "out of hours" there are at least two pharmacists on duty and

information should be available when required. In emergencies there is a 24 hour on call pharmacy service. The core information comes from text books, microfiche, journal articles and information from pharmaceutical companies. At present this Centre uses a card system but it will soon go on to computer. Roughly 50% of the calls it receives relate to adverse drug reactions. Amongst other things, the Centre can identify drugs prescribed in other countries.

The Australian Medical Association and the Royal Australasian College of General Practitioners are about to advertise the existence of the State Drug Information Centres within the medical profession since many doctors are still not aware of their existence.

Poisons Information Centres: There is a National Centre in Canberra and State Poisons Centres which operate 24 hours a day, seven days a week. They are, however, "Poisons" Information Centres and are distinct in their function from the Drug Information Centres which deal with all drug enquiries in a much broader sense.

Industry: Mention was made previously of the lack of after hour phone number contact for some companies, a situation which perhaps needs rectifying.

ICI Australia has established this year an Emergency Response System which became operational throughout the company on July 1st and represented a significant step towards minimising potential risks to the community and the environment in the case of an accident involving ICI products and raw materials in use, transport, and storage outside of ICI premises. The system, which is in line with established company safety policies, operates Australia-wide, 24 hours a day, seven days a week and provides access to a network of emergency experts on call, as well as back-up resources and an extensive information data bank. The new scheme is based on a target response of 15 minutes maximum.

The essential element of this system is the availability of company experts on call 24 hours a day anywhere in Australia. These people have been nominated because of their specialist knowledge of products and services, and their collective expertise covers the whole range of products provided by the company, including pharmaceuticals. Access to the company's response mechanism has been streamlined by the use of an all hours emergency telephone number and this will appear on all company products, labels, placards, vehicles, stores, safety literature and public telephone books (the number is already listed in the 1983 Melbourne White Pages). This number can be reached from anywhere in Australia at the cost of a local telephone call with ICI

accepting the charges automatically.

The Emergency Response System has been publicised extensively inside and outside the company. I believe that it sets an example which other companies might well follow.

In Conclusion

What, then, are the points which, I believe, merit further consideration.

(i) A contingency plan for the local manufacture of raw materials in the event of dislocation of supply from overseas. This would involve agreement with Government and emergency services on priorities and actions.

(ii) Possible further decentralisation of manufacturing facilities and warehousing.

(iii) Provision of pharmaceutical after hour numbers and the appropriate expert technical back-up.

(iv) Increased awareness of the existence and siting of drug information services.

DIRECTOR'S CLOSING ADDRESS

When I opened this Study I stated our belief that there is a need for Australia to be better prepared to cope with emergencies or disasters which will result in mass casualty situations. The victims will require early medical care and treatment.

Whether you shared that belief then, is immaterial: however, I sincerely hope that you share it now: and that you will act positively, and certainly not fitfully, to ensure that you do everything possible to improve our ability to cope with mass casualty-producing emergencies or disasters should they occur.

Having discussed the matters which arose during the Study, one could be tempted to say :

"Stop the world - I want to get off!"

Technological development has certainly brought major hazards for civilisation in its train - and we just don't know what is "around the corner". For this, if for no other reason, I believe this Study has been a timely event.

It was designed specifically to acquaint you with the current arrangements for dealing with mass casualty-producing emergencies in Australia, so that you could identify deficiencies in those arrangements and means of overcoming them, regardless of whether the emergencies occurred in a metropolitan or remote area of Australia.

I believe that, thanks to all those who presented papers and to all of you for your contribution, the aim of the Study has been achieved. But the Study will not have been a cost-effective venture unless the views which have been expressed in regard to deficiencies give rise to deeds and progressive action. It is through all of you - whose understanding and sustained effort are needed if we are to feel confident of our ability to manage casualties effectively in the event of any mass casualty-producing emergency or disaster in Australia - that improvement in the existing arrangement is likely to be effected.

In normal times, people believe that the government is taking care of their "defence" in all its aspects - including their defence against the hazards of disaster. Although, in normal times they give little thought to the fact that they could be affected by some natural or man-made disaster, their interest rises sharply when international tensions increase or when disaster strikes. In the aftermath of disaster, people and communities will strive to find a scapegoat - and, usually, they succeed. "The authorities" become the scapegoat, usually because their planning to take care of the defence of the people has been inadequate.

The need for much more effort to be applied to envisaging the sorts of events that could conceivably impact on a community, well in advance of their impact, is apparent. When this has been done, positive measures should be taken to reduce the likelihood of those events impacting, or to minimise their effects on people or on property, if and when they do. These positive measures embrace the processes of planning, and include:

* the analysis of the threat
* the determination of the aim
* the development of plans, and then
* the determination of the organisational structure
* the development of the organisation, including staffing and equipment
* the training of the organisation
* the testing of the organisation
* the testing of the plan
* the revision of both the plan and the organisation
* the re-testing - and so the cycle continues.

This may sound an awesome task - but given a normal community and a co-operative spirit, the task can be accomplished quite successfully. The planning aspects need not be costly.

Planning is a co-operative matter which involves many people and organisations working towards one aim - and the basic aim of all counter-disaster planning is to minimise human injury and suffering. Minimisation of property damage is usually a secondary consideration.

Planning in isolation is a practice which must be discouraged at all levels yet, it is not uncommon for authorities to depend on a well-intentioned and well-motivated individual to undertake the task of planning in isolation or in a vacuum. Unless all those authorities and individuals who are to be assigned roles and responsibilities in disaster plans are involved in the planning, or consulted throughout the planning process, the plan is unlikely to be implemented successfully. A further danger of planning in isolation is that the plan, having been completed, is more likely to rest on a shelf to gather dust than to be subject to the processes of the planning cycle which I discussed earlier.

Although, in my opening address, I expressed my disappointment at the limited amount of action which was taken as a consequence of the conclusions reached by the Mass Burns Casualty Management Symposium which was conducted here in June 1979, I am pleased to note that the matter of the inadequacy of specialist burns treatment facilities in Australia was raised in the Senate on November 3 by Senator Giles. In response to Senator Giles, Senator Gietzelt, the Minister for Veterans' Affairs, made these points :

> "I have been concerned and alarmed for some time at the inadequate specialist facilities in Australia ... for the simultaneous treatment of large numbers of burn victims .... Recent incidents have shown and highlighted the need for the urgent improvement of such facilities... Clearly, there is a need for some specialised national burns centre to be established in Australia to meet any of these eventualities... This is reflected in the recommendation from the Standing Committee of the State Health Ministers' Conference to establish a national burns centre... I have asked the Department to approach the New South Wales Health Department in order to establish the feasibility of developing a major burns unit at the Concord Repatriation General Hospital ... of at least ten bed capacity, with the capacity to expand rapidly in the event of any emergency ... We need a Commonwealth Burns Centre .... The facility would need to be community oriented and would complement the units that need to be established by the State Governments ... This is a matter which requires an initiative by the Commonwealth Government."

I am sure that you would want me to record, on your behalf, our gratitude to our keynote speaker, Mr Donald Beard, for his superb presentation of the keynote address at this Study. I have no doubt that this address was the pace-setter for the deliberations which ensued during what some of you have termed our "40 hour 3 day working week". Mr Beard's address highlighted the important aspects of the problem, and I would commend further study of his remarks to you all. It seems to me to be important that we prepare ourselves psychologically as well as in other ways, in advance for mass casualty events, which he suggests will probably result in the needs of society taking priority over the needs of the individual.

Our thanks are due also, to all the others who presented papers during the Study. Each presentation contributed significantly to the success of the Study. The Commonwealth overview and the various State and Territory presentations on their own counter-disaster arrangements for mass casualty management were interesting and invaluable, even though they gave rise to concern over a number of important issues. The presentation by Dr Jongbloed on the roles and capabilities of the Royal Flying Doctor Service was extremely interesting

and educational, as was Dr Proctor's presentation on the capabilities and limitations of Australia's pharmaceutical industry.

I know it is dangerous to single out one presentation for particular mention, but I do so because I believe we are all very concerned and somewhat alarmed to know of the true state of our phamaceutical industry. Is it prudent to be totally dependent on overseas supplies for life-saving drugs? To be told on such authority that it would take at least two years to develop an inherent production capability in Australia and that Australia does not plan to become self-sufficient - primarily because of high costs - does appear to me to be taking an unwarranted risk.

My thanks are also due to the members of the Working Party who, since even before our first meeting in April this year to develop this Study, have invoked their talents to ensure that the Study would attain its aim. The Working Party's efforts were, of course, supplemented by a lot of work, normally behind the scenes, by members of my own staff. I am very grateful, and from the comments which have been made to me by many of you, I feel that you share my gratitude to all the members of the staff who have contributed either directly to the conduct of the Study or in other important ways. Activities such as this impose a very considerable burden on my depleted staff resources but, despite this, it is always pleasing to me to see how cheerfully each member carries out his or her assigned task. Certainly, the efforts of all the members of the house staff warrant my commendation. The secretariat, whose task is really only just beginning, has an unenviable task but hopefully, before Easter next, each of you will receive, primarily as a result of his efforts, a copy of the Report of Proceedings of this Seminar which will contain a record of the formal papers which were presented, of the various syndicate presentations and of the conclusions of this Seminar. I also want to thank my Deputy, not only for the effort which he applied in preparing for the Seminar, but for the way in which he conducted the discussion exercises.

Finally, I want to thank each and every one of you for giving your time to attend and for the contribution which you have made to the success of the Study. As I stated in my letter of welcome, contained in your Study folder, I trust you have enjoyed the time you spent at the College and that you are leaving, believing you have engaged in a professionally rewarding event. From now on, I hope you will ensure that your own organisation's responsibilities, plans and preparations in this regard are reviewed and modified with a view to improving their effectiveness in implementation: and that you will urge others to do the same.

We can either continue to go along blissfully assuming that it can't happen here: or we can set about planning and preparing quite methodically for the disaster which, as our keynote speaker suggested "is just around the corner". Bearing in mind what we have discussed and the events we have witnessed on the screen during this Study, what do you intend to do? Above all, I urge you, please, not to be smug and to say, "She'll be right", or "We have no problems and we can handle anything that might occur". Delusion courts disaster - methodical planning and preparation will reduce its effects.

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